Third West Weekly Report
Shepherd, Michael
to:
Joyce Ackerman, 'Craig Barnitz (cbarnitz@utah.gov)'
03/21/2012 10:05 AM
Hide Details
From: "Shepherd, Michael" <Michael.Shepherd@PacifiCorp.com>

To: Joyce Ackerman/R8/USEPA/US@EPA, "'Craig Barnitz (cbarnitz@utah.gov)'" <cbarnitz@utah.gov>

8 Attachments

Weekly Report 03-12 to 03-17-12.pdf Third West Weekly Log 2012-11.pdf 231545-1.pdf 231640-1.pdf 231728-1.pdf
231818-1.pdf 231934-1.pdf 231937-1.pdf

Joyce & Craig,

Attached are the reports for the week of March 12, 2012.

We had positive hits pretty much all last week. Weather looks to be a little more cooperative this week.

Please let me know if you have any questions.

Thanks,

Mike Shepherd
Project Manager
Rocky Mountain Power - Major Projects
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PACIFICORP

R & R ENVIRONMENTAL, INC.

3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

DATE: 03/12/11

General

NA Work area Health and Safety Inspection

NA Review and if necessary update Activity Hazard Analyses (AHA) based on planned site activities for the day

NA Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP

NA Site hazard and safety instruction for all first time employees, contractors or visitors

NA Complete Employee Meeting Record Form B (where applicable)

NA Document required Respirator Training completion with Form H

NA Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.

NA Confirm return of waste material manifest documents for each load with site manager.

NA Complete all CSHASP Forms (for applicable activities planned for that day)

- NA Illness/Injury Report Form A
- NA Site-Specific Training Record Form C
- NA Hot Work Permit Form D
- NA Trench/Evacuation Permit Form E
- NA Combined Space Entry Permit From F
- ☑ Exclusion zone operations are practiced as instructed.
  - ☑ Decontamination unit is working properly.
  - ☑ Workers are using decontamination unit as instmcted.
  - ☑ Workers use personal protective equipment properly.

☑ Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.

☑ Review sign-in/sign-out log throughout and at the end of the workday.

☑ Secure the site at the end of the workday

Sampling

NA Soil Confirmation sampling for any newly excavated areas

☑ Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone

NA Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal

NA Digitally photograph each sample location and at any place field sampling personnel determined necessary

- ☑ Electronically file photo files into the on-site database

- ☑ Complete Field Documentation
  - ☑ Field Sample Data Sheets (FSDS)
  - ☑ Logbook
  - ☑ On-site computer database
- ☑ Label each sample media with a unique number
- ☑ Seal sample(s) in zip lock plastic bags
- ☑ Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
- ☑ Package samples for transport LAW SOP 2-1, Packaging and Shipping of Environmental Samples
- ☑ Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
- ☑ Electronically file sample reports into on-site database

PACIFICORP
A MIDAMERICAN ENERGY HOLDINGS COMPANY

3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station **Date:** 03/12/12

Location: 3rd West, 1st South, SLC **Job Number:**

Survey Conducted By: Justin Kargis **Title:**

Standard	*Title*	In Compliance ☐	Out of Compliance ☐	N/A ☐	*Corrective Action Taken and Date*
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

Standard	*Title*	In Compliance ☐	Out of Compliance ☐	N/A ☐	*Corrective Action Taken and Date*
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			x	
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	x			

Standard	*Title*	In Compliance ☐	Out of Compliance ☐	N/A ☐	*Corrective Action Taken and Date*
1926.451 (a) (4)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	x			
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			x	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	

Standard	*Title*	In Compliance ☐	Out of Compliance ☐	N/A ☐	*Corrective Action Taken and Date*
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			

Standard	*Title*	In Compliance ☐	Out of Compliance ☐	N/A ☐	*Corrective Action Taken and Date*
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

Comments:

Exclusion zone active once excavations began.

Newman loaded and washed out 8 trucks and trailers. They also backfilled and compacted in the area under the old control building.

CVE line crew attached two more switches to structural steel and staged equipment for further assembly.

STR continued assembly of transformers.

CVE fabricators stripped foundations and tied rebar.

Weather was warm, dry and sunny with a slight breeze. Highs in the mid 60's.

PACIFICORP
A MIDAMERICAN ENERGY HOLDINGS COMPANY

R & R ENVIRONMENTAL, INC.
ASBESTOS • LEAD • INDUSTRIAL HYGIENE

3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

DATE: 03/13/11

General

NA Work area Health and Safety Inspection

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NA Complete all CSHASP Forms (for applicable activities planned for that day)

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- NA Site-Specific Training Record Form C
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☑ Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.

☑ Review sign-in/sign-out log throughout and at the end of the workday.

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NA Soil Confirmation sampling for any newly excavated areas

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NA Digitally photograph each sample location and at any place field sampling personnel determined necessary

- ☑ Electronically file photo files into the on-site database

- ☑ Complete Field Documentation
  - ☑ Field Sample Data Sheets (FSDS)
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  - ☑ On-site computer database
- ☑ Label each sample media with a unique number
- ☑ Seal sample(s) in zip lock plastic bags
- ☑ Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
- ☑ Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
- ☑ Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
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PACIFICORP
A MIDAMERICAN ENERGY HOLDINGS COMPANY

3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station **Date:** 03/13/12

Location: 3rd West, 1st South, SLC **Job Number:**

Survey Conducted By: Justin Kargis **Title:**

Standard	*Title*	In Compliance ☐	Out of Compliance ☐	N/A ☐	*Corrective Action Taken and Date*
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

Standard	Title	In Compliance ☐	Out of Compliance ☐	N/A ☐	Corrective Action Taken and Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			x	
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	x			

Standard	*Title*	In Compliance ☐	Out of Compliance ☐	N/A ☐	*Corrective Action Taken and Date*
1926.451 (a) (4)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	x			
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			x	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	

Standard	*Title*	In Compliance ☐	Out of Compliance ☐	N/A ☐	*Corrective Action Taken and Date*
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1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	
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Comments:

Exclusion zone active once excavations began.

Newman loaded and washed out 8 trucks and trailers. They also backfilled and compacted in the area under the old control building. R&R discussed with Newman the application of water to native soil in the EZ that has dried out and has the potential to be disturbed.

CVE line crews worked on attaching switches to structural steel.

STR continued assembly and inspection of transformers.

CVE electricians worked on wiring and assembly of electrical equipment.

Weather was mostly cloudy, warm and breezy with highs in the low 60's. No precipitation.

PACIFICORP

R & R ENVIRONMENTAL, INC.

3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

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Survey Conducted By: Justin Kargis **Title:**

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1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
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1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
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Comments:

Exclusion zone active once excavations began.

Bi-weekly meeting covered timelines, scheduling, and environmental items. R&R indicated that some of the native soil in the EZ has dried out and mentioned the application of water for dust control.

Newman loaded and washed out 8 trucks with trailers throughout the day. Some entry into the exclusion zone without suiting up was observed.

CVE fabricators worked on various tasks and tied rebar for the capacitor bank pad.

CVE line crew continued working on attaching components to structural steel.

STR received mineral oil and container for transformers and continued assembly and inspection of transformers. They determined that one of the CT terminal blocks is cracked.

Weather was warm, mostly cloudy and breezy. Temperatures in the low 60's with no precipitation.

PACIFICORP

R & R ENVIRONMENTAL, INC.

3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

DATE: 03/15/11

General

NA Work area Health and Safety Inspection

NA Review and if necessary update Activity Hazard Analyses (AHA) based on planned site activities for the day

NA Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP

NA Site hazard and safety instruction for all first time employees, contractors or visitors

NA Complete Employee Meeting Record Form B (where applicable)

NA Document required Respirator Training completion with Form H

NA Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.

NA Confirm return of waste material manifest documents for each load with site manager.

NA Complete all CSHASP Forms (for applicable activities planned for that day)

- NA Illness/Injury Report Form A
- NA Site-Specific Training Record Form C
- NA Hot Work Permit Form D
- NA Trench/Evacuation Permit Form E
- NA Combined Space Entry Permit From F
- ☑ Exclusion zone operations are practiced as instructed.
  - ☑ Decontamination unit is working properly.
  - ☑ Workers are using decontamination unit as instructed.
  - ☑ Workers use personal protective equipment properly.

☑ Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.

☑ Review sign-in/sign-out log throughout and at the end of the workday.

☑ Secure the site at the end of the workday

Sampling

NA Soil Confirmation sampling for any newly excavated areas

☑ Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone

NA Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal

NA Digitally photograph each sample location and at any place field sampling personnel determined necessary

- ☑ Electronically file photo files into the on-site database

- ☑ Complete Field Documentation
  - ☑ Field Sample Data Sheets (FSDS)
  - ☑ Logbook
  - ☑ On-site computer database
- ☑ Label each sample media with a unique number
- ☑ Seal sample(s) in zip lock plastic bags
- ☑ Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
- ☑ Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
- ☑ Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
- ☑ Electronically file sample reports into on-site database

PACIFICORP
A MIDAMERICAN ENERGY HOLDINGS COMPANY

3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station **Date:** 03/15/12

Location: 3rd West, 1st South, SLC **Job Number:** _____

Survey Conducted By: Justin Kargis **Title:** _____

Standard	*Title*	In Compliance ☐	Out of Compliance ☐	N/A ☐	*Corrective Action Taken and Date*
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

Standard	Title	In Compliance ☐	Out of Compliance ☐	N/A ☐	Corrective Action Taken and Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			x	
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	x			

Standard	*Title*	In Compliance ☐	Out of Compliance ☐	N/A ☐	*Corrective Action Taken and Date*
1926.451 (a) (4)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	x			
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			x	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	

Standard	*Title*	In Compliance ☐	Out of Compliance ☐	N/A ☐	*Corrective Action Taken and Date*
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			

Standard	*Title*	In Compliance ☐	Out of Compliance ☐	N/A ☐	*Corrective Action Taken and Date*
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

Comments:

Exclusion zone active once excavations began.

Newman continued backfilling and compaction in area east of bay 2 in preparation of laying conduit and duct banks. Exclusion zone practices were somewhat relaxed as heavy equipment was frequently entering and exiting throughout the day.

CVE fabricators continued working on structural steel foundations.

CVE line crew attached componentry to structural steel.

CVE electricians worked on wiring and electrical work on structural steel.

STR continued transformer set up and preparation.

PACIFICORP

R & R ENVIRONMENTAL, INC.

3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

DATE: 3/16/12

General

- ☑ Work area Health and Safety Inspection
- NA Review and if necessary update Activity Hazard Analyses (AHA) based on planned site activities for the day
- NA Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
- NA Site hazard and safety instruction for all first time employees, contractors or visitors
- NA Complete Employee Meeting Record Form B (where applicable
- NA Document required Respirator Training completion with Form H
- NA Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
- NA Confirm return of waste material manifest documents for each load with site manager.
- NA Complete all CSHASP Forms (for applicable activities planned for that day)
  - NA Illness/Injury Report Form A
  - NA Site-Specific Training Record Form C
  - NA Hot Work Permit Form D
  - NA Trench/Evacuation Permit Form E
  - NA Combined Space Entry Permit From F
- ☑ Exclusion zone operations are practiced as instructed.
  - ☑ Decontamination unit is working properly.
  - ☑ Workers are using decontamination unit as instructed.
  - ☑ Workers use personal protective equipment properly.

- ☑ Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
- ☑ Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
- ☑ Review sign-in/sign-out log throughout and at the end of the workday.
- ☑ Secure the site at the end of the workday

Sampling

- NA Soil Confirmation sampling for any newly excavated areas
- ☑ Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusions zone
- NA Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
- NA Digitally photograph each sample location and at any place field sampling personnel determined necessary
- ☑ Electronically file photo files into the on-site database

☑	Complete Field Documentation
☑	Field Sample Data Sheets (FSDS)
☑	Logbook
NA	On-site computer database
☑	Label each sample media with a unique number
☑	Seal sample(s) in zip lock plastic bags
☑	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
☑	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
NA	Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
NA	Electronically file sample reports into on-site database

PACIFICORP
A MIDAMERICAN ENERGY HOLDINGS COMPANY

3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station **Date:** 3/16/12

Location: 3rd West, 1st South, SLC **Job Number:**

Survey Conducted By: Justin Kargis **Title:**

Standard	*Title*	In Compliance ☐	Out of Compliance ☐	N/A ☐	*Corrective Action Taken and Date*
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.			x	
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

Standard	*Title*	In Compliance ☐	Out of Compliance ☐	N/A ☐	*Corrective Action Taken and Date*
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.			x	

Standard	*Title*	In Compliance ☐	Out of Compliance ☐	N/A ☐	*Corrective Action Taken and Date*
1926.451 (a) (4)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.			x	
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			x	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			x	

Standard	*Title*	In Compliance ☐	Out of Compliance ☐	N/A ☐	*Corrective Action Taken and Date*
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			x	
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer of the tool is double insulated.			x	
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

Standard	*Title*	In Compliance ☐	Out of Compliance ☐	N/A ☐	*Corrective Action Taken and Date*
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.	x			

Comments:

Exclusion zone active once excavations began.

Newman began digging trenches for 46 kV conduit lines west of bay 2. Somewhat relaxed EZ observance with entering and exiting while not being suited up while excavations were taking place. Newman was again encouraged to apply to water to dried native material as dusty conditions have resulted from warm and dry weather over the last 5 days.

CVE line crew began erecting structure steel in bay 2.

CVE fabricators continued drilling drainage holes at the base of structure columns in bay 1.

STR began processing oil in transformer 2 and will work over night for the next two days.

Weather was dry with overcast skier. Breezy with temperatures in the high 60s and no precipitation.

PACIFICORP
A MIDAMERICAN ENERGY HOLDINGS COMPANY

3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station **Date:** 3/17/12

Location: 3rd West, 1st South, SLC **Job Number:**

Survey Conducted By: Justin Kargis **Title:**

Standard	*Title*	In Compliance ☐	Out of Compliance ☐	N/A ☐	*Corrective Action Taken and Date*
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.			x	
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

Standard	Title	In Compliance ☐	Out of Compliance ☐	N/A ☐	Corrective Action Taken and Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.			x	

Standard	*Title*	In Compliance ☐	Out of Compliance ☐	N/A ☐	*Corrective Action Taken and Date*
1926.451 (a) (4)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.			x	
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			x	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			x	

Standard	*Title*	In Compliance ☐	Out of Compliance ☐	N/A ☐	*Corrective Action Taken and Date*
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			x	
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer of the tool is double insulated.			x	
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

Standard	*Title*	In Compliance ☐	Out of Compliance ☐	N/A ☐	*Corrective Action Taken and Date*
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.	x			

Comments:

Exclusion zone active once excavations began.
Newman continued digging 46kV conduit line trenches and placed conduit. The exclusion zone fence was left down along the east side due to high winds and will be replaced on Monday.
STR continued processing oil in the transformers and will work over night again.
Weather was windy and dry with temperatures in the mid 60s.

PHOTO 1

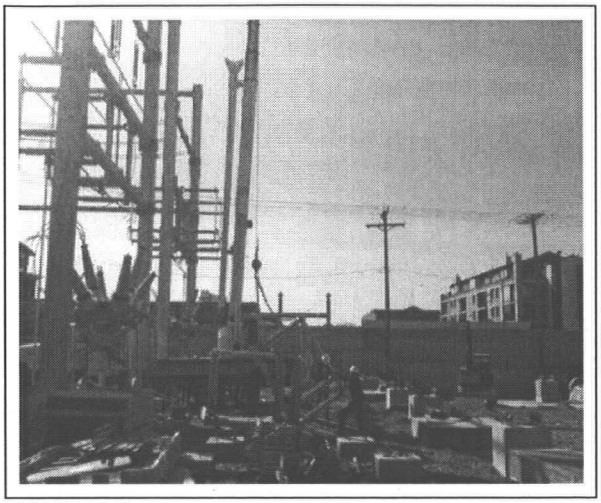

PHOTO 2

PHOTO 3

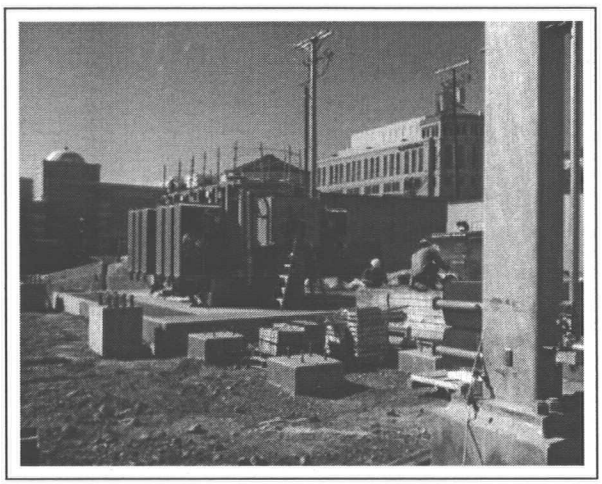

PHOTO 4

R & R Environmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR
DRAWN BY: JMK	DATE 03/12/12	FILE:

SITE PHOTOGRAPHS

PACIFICORP
A MIDAMERICAN ENERGY HOLDINGS COMPANY

3rd West Substation
"2011 Upgrade Project"
Salt Lake City, Utah

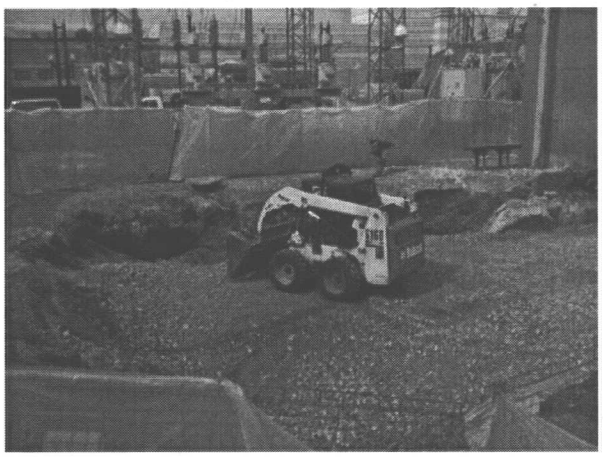

PHOTO 1

PHOTO 2

PHOTO 3

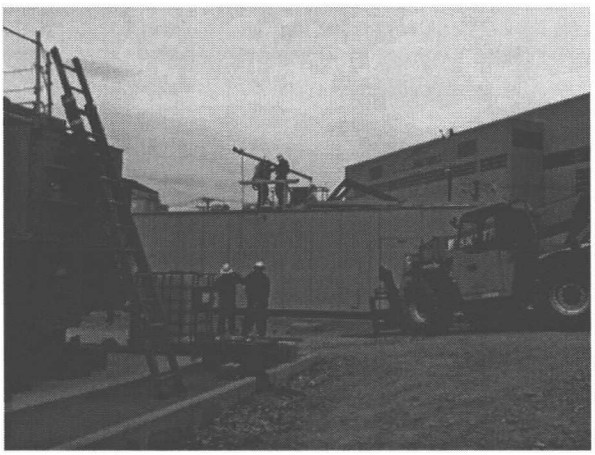

PHOTO 4

R & R Environmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR
DRAWN BY: JMK	DATE 03/13/12	FILE:

SITE PHOTOGRAPHS

PACIFICORP
A MIDAMERICAN ENERGY HOLDINGS COMPANY

3rd West Substation
"2011 Upgrade Project"
Salt Lake City, Utah

PHOTO 1

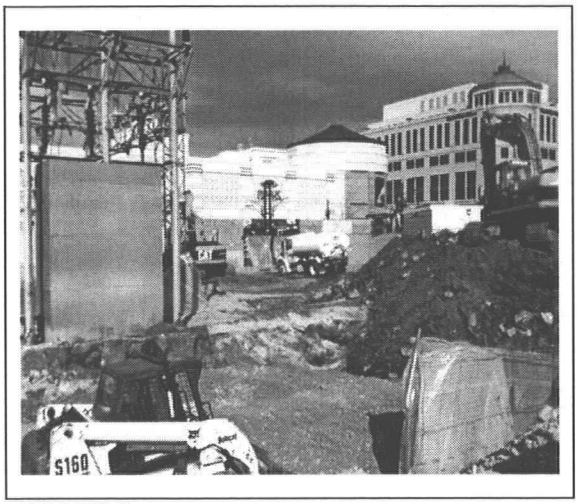

PHOTO 2

PHOTO 3

R & R Environmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR
DRAWN BY: JMK	DATE 03/15/12	FILE:

SITE PHOTOGRAPHS

PACIFICORP
A MIDAMERICAN ENERGY HOLDINGS COMPANY

3rd West Substation
"2011 Upgrade Project"
Salt Lake City, Utah

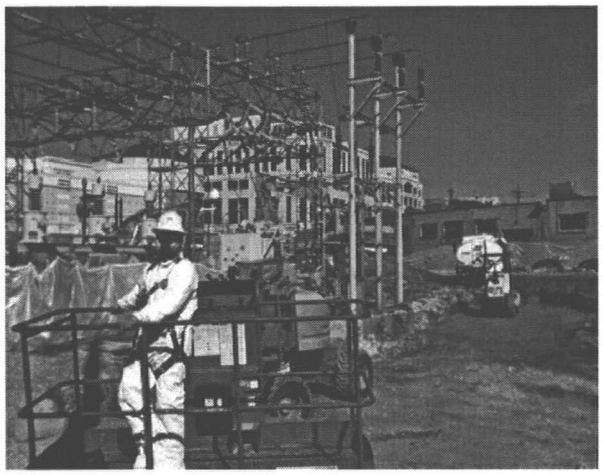

PHOTO 1

PHOTO 2

PHOTO 3

PHOTO 4

R & R Environmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
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PROJECT NO:

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SITE PHOTOGRAPHS

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Salt Lake City, Utah

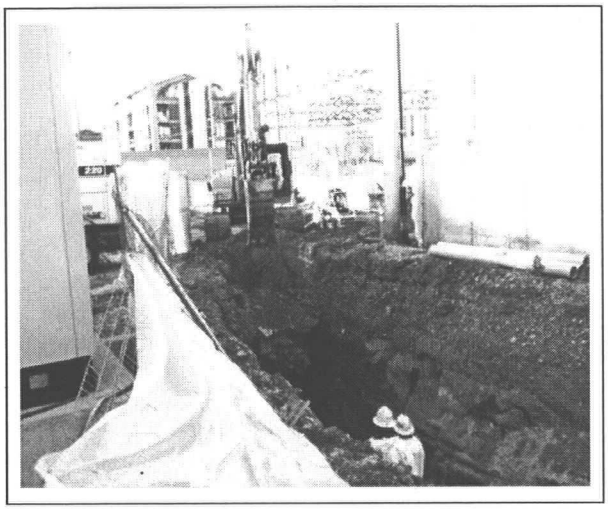


PHOTO 1

PHOTO 2

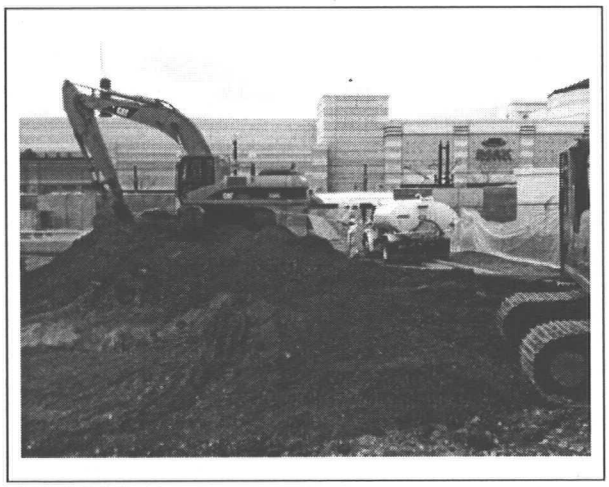


PHOTO 3

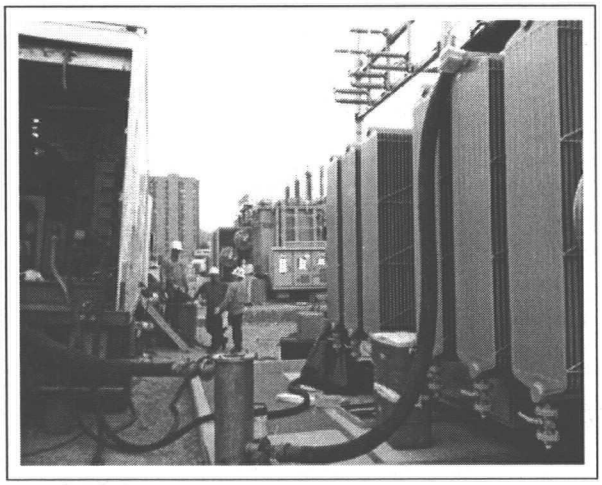


PHOTO 4

R & R Environmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR
DRAWN BY: JMK	DATE: 03/16/12	FILE:

SITE PHOTOGRAPHS

PACIFICORP
A MIDAMERICAN ENERGY HOLDINGS COMPANY

3rd West Substation
"2011 Upgrade Project"
Salt Lake City, Utah

PHOTO 5

PHOTO 6

PHOTO 7

R & R Environmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:		
DESIGNED BY:	SCALE:	REVIEWED BY: DCR
DRAWN BY: JMK	DATE: 03/16/12	FILE:

SITE PHOTOGRAPHS

PACIFICORP
A MIDAMERICAN ENERGY HOLDINGS COMPANY

3rd West Substation
"2011 Upgrade Project"
Salt Lake City, Utah

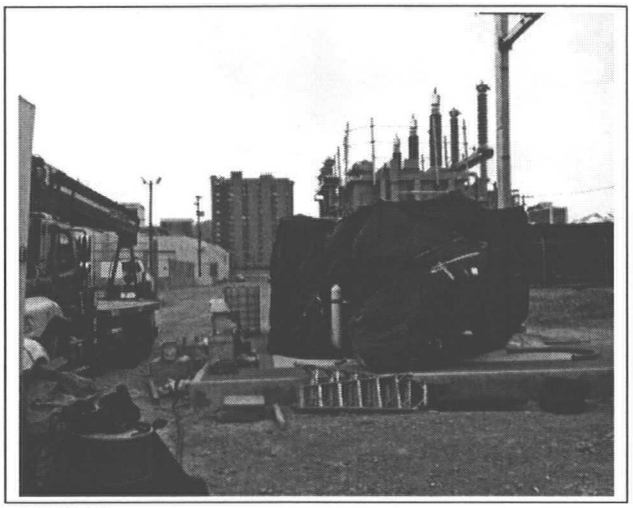


PHOTO 1

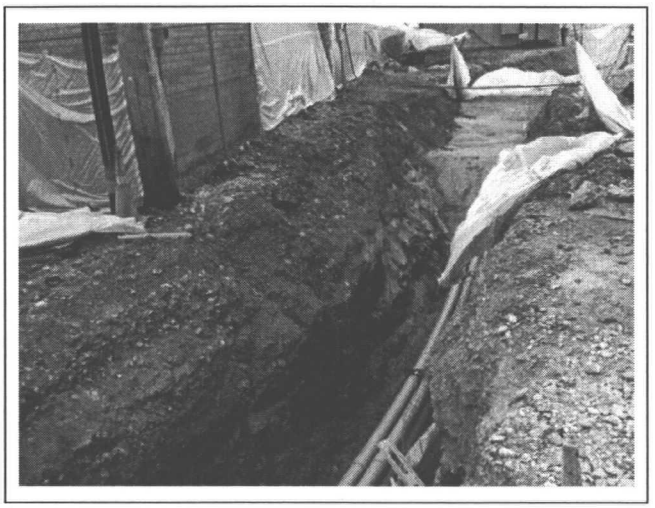


PHOTO 2

PHOTO 3

R & R Environmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:		
DESIGNED BY:	SCALE:	REVIEWED BY: DCR
DRAWN BY: JMK	DATE: 03/17/12	FILE:

SITE PHOTOGRAPHS

PACIFICORP
A MIDAMERICAN ENERGY HOLDINGS COMPANY

3rd West Substation
"2011 Upgrade Project"
Salt Lake City, Utah

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild **DATE :** Sunday, March 11, 2012

PO & Work Order NO. : 3000078050 / 10035803 **MAIN CONTRACTOR :** Cache Valley Electric

Crew Start Time:	6:55	**Crew Stop Time:**	18:55	**Tot Hrs mns:**	12:00
FCR Start Time:	6:50	**FCR Stop Time:**	18:55	**Tot Hrs mns:**	12:05

Use military time format 00:00

WEATHER CONDITIONS: Sunny - 35 degrees in AM, 60 degrees in the PM

DESCRIPTION: (work performed, general comments, Instructions to contractor, # of crew members onsite.)

Only crew working today is STR. STR installed the LV CTs and the HV and LV bushings. CVE Fab Crew =0, CVE Line Crew = 0, CVE Electrical Crew = 0, Newman =0, STR = 4, R&R = 0, Wilding = 0.

IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time:	Earl McGlore 0650
Dispatcher logout, name and time:	Mike Spence 1855

DISCREPANCIES:	IMMEDIATE CORRECTIVE ACTION TAKEN:
3/2 - Two aux relays missing from Pederson Switchgear.	Pederson indicates these are known by Pederson and RMP PM's and will be shipped soon
3/11 - New gaskets for the LV bushings were not included in the shipping crates, so shipping gaskets were inspected, cleaned, and installed	Sent Ken Foster an e-mail identifying the issue
11/30 - identified an additional retaining wall that is below grade and does not show on the Demo Plan.	Will excavate to determine dimensions.
12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and didn't find them. Will try again. Actual depth will be much deeper than design of new bank	Sent e-mail to Roger F.

DELAYS OR LOST TIME ENCOUNTERED:

New CT terminal block has been ordered from Hyundai. STR is attempting to maintain a positive pressure on Xfmr #1 until new block arrives. There was no pressure on xfmr #1 this morning when we started working.

EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex , exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), boom truck, JLG (2), tool trailer. Newman: trachoe (4), loader, bobcat, mini-ex (2), water truck, compactor, backhoe. STR = crew truck, tool trailer, boom truck.

OSHA Recordable Safety Incidents:	Reported by:	Time:

ROCKY MOUNTAIN POWER
A DIVISION OF PACIFICORP

Russ Johnson
Field Construction Representative

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild **DATE :** Monday, March 12, 2012

PO & Work Order NO. : 3000078050 / 10035803 **MAIN CONTRACTOR :** Cache Valley Electric

Crew Start Time:	6:55	Crew Stop Time:	18:55	Tot Hrs mns:	12:00
FCR Start Time:	6:40	FCR Stop Time:	18:58	Tot Hrs mns:	12:18

Use military time format 00:00

WEATHER CONDITIONS: Sunny - 35 degrees in AM, 66 degrees in the PM

DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set up four monitors. CVE Line Crew hauled and set the two switches over the west side of the CBs. CVE Fab Crew stripped the CB and F foundations. CVE Electrical Crew mounted the CT Junction Box . Newman loaded out four trucks between 7:00 and 9:00 AM and four more trucks in the PM. Newman has placed material in the old control bldg excavation and Wilding is providing compaction testing. Newman is placing material in the area south of transformer #2. STR mounted boxes on the north side of the transformers for storing the fa protection railing and ropes. They mounted bracing for the radiators and are working on connecting all of the CT wiring and LV bushing lea in Xfmr #1. STR has moved most of the accessories into the yard and will focus on installing CTs and bushings in Xfmr #2 tomorrow. CVE Fab Crew = 2, CVE Line Crew = 5, CVE Electrical Crew = 3, Newman = 5, STR = 4, R&R = 1, Wilding =1.

IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time:	Gus Montanez 0640
Dispatcher logout, name and time:	Barry Nielson 1858

DISCREPANCIES:	IMMEDIATE CORRECTIVE ACTION TAKEN:
3/2 - Two aux relays missing from Pederson Switchgear.	Pederson indicates these are known by Pederson and RMP PM's and will be shipped soor
3/11 - New gaskets for the LV bushings were not included in the shipping crates, so shippina aaskets were inspected, cleaned, and installe	Sent Ken Foster an e-mail identifying the issue
11/30 - Identified an additional retaining wall that is below grade and does not show on the Demo Plan.	Will excavate to determine dimensions.
12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and didn't find them. Will try again. Actual depth will be much deeper than design of new bank	Sent e-mail to Roger F.

DELAYS OR LOST TIME ENCOUNTERED:

STR identified that the power cable from their processing trailer to their generator has been cut and stolen. Will work with them to identify a local source for replacement.

EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex , exclusion zone conex; (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), boom truck, JLG (2), tool trailer. Newman: trachoe (4), loader, bobcat, mini-ex (2), water truck, compactor, backhoe. STR = crew truck, tool trailer, boom truck, processing trailer, generator.

OSHA Recordable Safety Incidents:	Reported by:	Time:

ROCKY MOUNTAIN POWER
A DIVISION OF PACIFICORP

Russ Johnson
Field Construction Representative

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild **DATE :** Tuesday, March 13, 2012

PO & Work Order NO. : 3000078050 / 10035803 **MAIN CONTRACTOR :** Cache Valley Electric

Crew Start Time:	6:50	Crew Stop Time:	17:35	Tot Hrs mns:	10:45
FCR Start Time:	6:43	FCR Stop Time:	17:38	Tot Hrs mns:	10:55

Use military time format 00:00

WEATHER CONDITIONS: Sunny - 38 degrees in AM, 63 degrees in the PM

DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set up four monitors.. CVE crews worked 8 hours yesterday and today. CVE Line Crew welded bar taps on the upper bus for jumpers to the E-W wire bus, completed installation of piping to the two switches installed on the west side of the CBs and started installing bus on t switchgear. They also moved aluminum bus and rebar to provide space for the oil storage tank that will be delivered in the morning. CVE Fab Crew tied rebar mats for the remaining spread footings and capacitor banks. CVE Electrical Crew mounted conduits and lights on the east columns. Newman loaded out four trucks between 7:00 and 9:00 AM and four more trucks in the PM, for a total of 203 loads, to date. Newman has placed material in the old control bldg excavation and Wilding is providing compaction testing. STR installed HV and LV CTs and LV bushings on Xfmr #2. STR has secured new power cable for their oil processing plant to replace the cable that was stolen, probably when their processing plant was stored at their hotel CVE Fab Crew = 3, CVE Line Crew = 5, CVE Electrical Crew = 3, Newman = 5, STR = 4, R&R = 1, Wilding =1.

IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time:	Gus Montanez 0643
Dispatcher logout, name and time:	Barry Nielson 2122 (called in late)

DISCREPANCIES:	IMMEDIATE CORRECTIVE ACTION TAKEN:
3/2 - Two aux relays missing from Pederson Switchgear.	Pederson indicates these are known by Pederson and RMP PM's and will be shipped soon
3/11 - New gaskets for the LV bushings were not included in the shipping crates, so shipping gaskets were inspected, cleaned, and installe	Hyundai has indicated that the shipping gaskets are acceptable for permanent installation.
11/30 - Identified an additional retaining wall that is below grade and does not show on the Demo Plan.	Will excavate to determine dimensions.
12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and didn't find them. Will try again. Actual depth will be much deeper than design of new bank	Sent e-mail to Roger F.

DELAYS OR LOST TIME ENCOUNTERED:

STR identified that the power cable from their processing trailer to their generator has been cut and stolen. Will work with them to identify a local source for replacement.

EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex , exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), boom tmck, JLG (2), tool trailer. Newman: trachoe (4), loader, bobcat, mini-ex (2), water truck, compactor, backhoe. STR = crew truck, tool trailer, boom truck, processing trailer, generator.

OSHA Recordable Safety Incidents:	Reported by:	Time:

ROCKY MOUNTAIN POWER
A DIVISION OF PACIFICORP

Russ Johnson
Field Construction Representative

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third West Sub - Rebuild	**DATE :**	Wednesday, March 14, 2012
PO & Work Order NO. :	3000078050 / 10035803	**MAIN CONTRACTOR :**	Cache Valley Electric

Crew Start Time:	6:45	**Crew Stop Time:**	20:55	**Tot Hrs mns:**	14:10
FCR Start Time:	6:43	**FCR Stop Time:**	20:58	**Tot Hrs mns:**	14:15

Use military time format 00:00

WEATHER CONDITIONS: Sunny - 40 degrees in AM, 65 degrees in the PM

DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set up four monitors. CVE crews worked 8 hours again today. CVE Line Crew installed terminal connectors and bus work on the switchgear. CVE Fab Crew mobed to Jordan Sub for the day. CVE Electrical Crew mounted conduits and lights on the east columns and unloaded 20 batteries in the control bldg (3/13). Newman loaded out four trucks between 7:00 and 9:00 AM and four more trucks in the PM for a total of 211 loads, to date. Newman has placed material in the old control bldg excavation and Wilding is providing compaction testing STR installed HV bushings, connected the HV and LV CTs, installed the final radiator, and set the bracket for the HV arresters on Xfmr #2. CVE Fab Crew = 0, CVE Line Crew = 5, CVE Electrical Crew = 3, Newman = 5, STR = 4, R&R = 1, Wilding =1.

IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time:	Gus Montanez 0643
Dispatcher logout, name and time:	Jim Batt 2058

DISCREPANCIES:	IMMEDIATE CORRECTIVE ACTION TAKEN:
3/2 - Two aux relays missing from Pederson Switchgear.	Pederson indicates these are known by Pederson and RMP PM's and will be shipped soor
3/11 - New gaskets for the LV bushings were not included in the shipping crates, so shlooina aaskets were insoected, cleaned, and installe	Hyundai has indicated that the shipping gaskets are acceptable for oermanent installation.
11/30 - Identified an additional retaining wall that is below grade and does not show on the Demo Plan.	Will excavate to determine dimensions.
12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and didn't find them. Will try aaain. Actual deoth will be much deeoer than desian of new bank	Sent e-mail to Roger F.

DELAYS OR LOST TIME ENCOUNTERED:

STR identified that the power cable from their processing trailer to their generator has been cut and stolen. Will work with them to identify a local source for replacement.

EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex , exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), boom truck, JLG (2), tool trailer. Newman: trachoe (4), loader, tbtrcat, mini-ex (2), water tmck, compactor, backhoe. STR = crew truck, tool trailer, boom truck, processing trailer, generator.

OSHA Recordable Safety Incidents:	Reported by:	Time:

ROCKY MOUNTAIN POWER
A DIVISION OF PACIFICORP

Russ Johnson
Field Construction Representative

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild **DATE :** Thursday, March 15, 2012

PO & Work Order NO. : 3000078050 / 10035803 **MAIN CONTRACTOR:** Cache Valley Electric

Crew Start Time:	6:50	Crew Stop Time:	19:05	Tot Hrs mns:	12:15
FCR Start Time:	6:41	FCR Stop Time:	19:10	Tot Hrs mns:	12:29

Use military time format 00:00

WEATHER CONDITIONS: Sunny - 44 degrees in AM, 65 degrees in the PM

DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set up four monitors. CVE crews, except line crew, worked 8 hours again today. CVE Line Crew installed wire bus and jumpers in the NE 138 kV bay, set steel for the 138 kv CCVTs/terminator/arrestor structure, and terminal connectors and bus work on the switchgear. CVE Fab Crew cleaned out the cracked concrete in the SW corner of the switchgear floor and I sent pictures to John Mancini with proposed materials for repair. They started drilling 2" holes in the grouted area under the columns on G foundations. CVE Electrical Crew removed the enclosure from around the east 46 kV getaway and some angle iron framing to facilitate placement of the new conduit risers. Newman focused on filling in the excavation from the old control building and switchgear to facilitate the trench for the 46 kV duct bank. STR installed HV and LV arresters and brackets on Xfmr #2. Ken Foster came by around 3:30 and we discussed solutions for the grounding of the HV and LV arrestors, and the XO bushing. STR is staging equipment to allow them to start pulling vacuum in the morning. CVE Fab Crew = 3, CVE Line Crew = 5, CVE Electrical Crew = 3, Newman = 4, STR = 4, R&R = 1, Wilding =1.

IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time:	Ken Barto 0641
Dispatcher logout, name and time:	Jim Batt 1716

DISCREPANCIES:	IMMEDIATE CORRECTIVE ACTION TAKEN:
3/2 - Two aux relays missing from Pederson Switchgear.	Pederson has confirmed that aux relays will be shipped on 3/23.
11/30 - Identified an additional retaining wall that is below grade and does not show on the Demo Plan.	Will excavate to determine dimensions.
12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and didn't find them. Will try again. Actual depth will be much deeper than design of new bank	Sent e-mail to Roger F.

DELAYS OR LOST TIME ENCOUNTERED:

STR identified that the power cable from their processing trailer to their generator has been cut and stolen. Will work with them to identify a local source for replacement.

EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex , exclusion zone conex, (2), tool trailer, crow truck. CVE Line Crew: Pickup (2), boom truck, JLG (2), tool trailer. Newman: trachoe (4), loader, bobcat, minl-ex (2), water truck, compactor, backhoe. STR = crew truck, tool trailer, boom truck, processing trailer, generator.

OSHA Recordable Safety Incidents:	Reported by:	Time:

ROCKY MOUNTAIN POWER
A DIVISION OF PACIFICORP

Russ Johnson
Field Construction Representative

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild **DATE :** Friday, March 16, 2012

PO & Work Order NO. : 3000078050 / 10035803 **MAIN CONTRACTOR :** Cache Valley Electric

Crew Start Time:	6:50	Crew Stop Time:	23:59	Tot Hrs mns:	17:09
FCR Start Time:	6:37	FCR Stop Time:	19:38	Tot Hrs mns:	13:01

Use military time format 00:00

WEATHER CONDITIONS: Sunny - 45 degrees in AM, 65 degrees in the PM, looks like rain but not yet

DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set up four monitors. CVE crews, except line crew, worked 8 hours again today. CVE Line Crew received two loads of structural steel, including four of the box structure columns. They set the four columns and assembled two upper beams. CVE Fab Crew completed drilling the 2" holes in the grouted "G" fdns and did prep work for the installation of conduits at the deadend structures af 100 South and 550 West. CVE Electrical Crew installed conduits on the north 138 kV termination structure and installed the conduits into the control cabinet for Xfmr #1. Newman placed one lift in the excavation area then spent the rest of day excavating for the 46 kV duct bank. They completed the bulk of the excavation except for a short run into the east getaway and a short section across the area east of the east getaway. STR set up their oil processing equipment and started pulling vacuum around 8:30. By around 11:00 they were pumping oil into Xfmr #2 and at 1600 they did their first cold trap test (7 oz. of water). The 2000 hour test was 8 and the 2400 hour test was 6. Ken Foster came by and dropped off one of the replacement CT blocks and we discussed with Dragos the options for the grounding of the arresters and it was determined that STR will install the insulated cable, provided by Hyundai, rather than wait for Hyundai to provide the "bus bars" that are called out on the Hyunda BOM. Alan Bezzant came by and provided me CIPS and FERC training. Ron Olieken will be providing inspector support for the night shift. CVE Fab Crew = 3, CVE Line Crew = 5, CVE Electrical Crew = 3, Newman = 5, STR = 4, R&R = 1, Wilding =1.

IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time:	Ken Barto 0637
Dispatcher logout, name and time:	Mike Spence 1938 - Notified Dispatcher we will be working 24/7 thru processing duration

DISCREPANCIES:	IMMEDIATE CORRECTIVE ACTION TAKEN:
3/2 - Two aux relays missing from Pederson Switchgear.	Pederson has confirmed that aux relays will be shipped on 3/23.
11/30 - Identified an additional retaining wall that is below grade and does not show on the Demo Plan.	Will excavate to determine dimensions.
12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and didn't find them. Will try aaain. Actual depth will be much deeper than design of new bank	Sent e-mail to Roger F.

DELAYS OR LOST TIME ENCOUNTERED:

Note: Cold trap test results: 1600 hours = 7, 1800 hours = 8, 2400 hours = 6.

EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex , exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), boom truck, JLG (2), tool trailer. Newman: trachoe (4), loader, bobcat, mini-ex (2), water truck, compactor, backhoe. STR = crew truck, tool trailer, boom truck, processing trailer, generator.

OSHA Recordable Safety Incidents:	Reported by:	Time:

ROCKY MOUNTAIN POWER
A DIVISION OF PACIFICORP

Russ Johnson
Field Construction Representative

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild | DATE : Saturday, March 17, 2012

PO & Work Order NO. : 3000078050 / 10035803 | MAIN CONTRACTOR : Cache Valley Electric

Crew Start Time:	0:00	Crew Stop Time:	22:00	Tot Hrs mns:	22:00
FCR Start Time:	0:00	FCR Stop Time:	22:00	Tot Hrs mns:	22:00

Use military time format 00:00

WEATHER CONDITIONS: Cloudy and Breezy - 40 degrees in AM, 60 degrees in PM

DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set up four monitors and returned around 1330 hours to remove. Ron Olieken, Kenny Inspector, came on shift last night at 1830 and I relieved him this morning at 0600. Pulling of vacuum went throughout the night with testds taken at midnight = 6 oz. and at 0400 = 3 oz., and at 0800 = 2 oz., and at 1200 = STR has determined they will proceed with filling Xfmr #2 with oil if the 1200 hours cold trap test results in less than 2 oz. If the test does not result in less than 2 oz. they will continue pulling vacuum until it does. The 1200 hour test resulted in less than 2 oz. so STR started pumping oil into the LTC and then shifted to the main tank. The process should take about 10 to 12 hours. Ron retumed to the site at 1600 hours and filling of the transfonner was completed at approximately 2000 hours. No CVE crews are on site today. Newman resumed digging of 46 kV duct bank and placing of conduit and completed the work around 1100 hours. CVE Fab Crew =0, CVE Line Crew = 0, CVE Electrical Crew = 0, Newman = 5, STR = 4, R&R = 1, Wilding =0.

IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time:	Notified Dispatcher last night that we will be on site 24/7 through processing of Xfmr #2.
Dispatcher logout, name and time:	Don't know if Ron called dispatcher when job closed earlier than expected.

DISCREPANCIES:	IMMEDIATE CORRECTIVE ACTION TAKEN:
3/2 - Two aux relays missing from Pederson Switchgear.	Pederson has confirmed that aux relays will be shipped on 3/23.
11/30 - Identified an additional retaining wall that is below grade and does not show on the Demo Plan.	Will excavate to determine dimensions.
12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and didn't find them. Will try again. Actual depth will be much deeper than design of new bank	Sent e-mail to Roger F.

DELAYS OR LOST TIME ENCOUNTERED:

Note: Cold trap test results: 0400 hours = 3, 0800 hours =<2 , 1200 hours =<2.

EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex , exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), boom truck, JLG (2), tool trailer. Newman: trachoe (4), loader, bobcat, mini-ex (2), water truck, compactor, backhoe. STR = crew truck, tool trailer, boom truck, processing trailer, generator.

OSHA Recordable Safety Incidents:	Reported by:	Time:

ROCKY MOUNTAIN POWER
A DIVISION OF PACIFICORP

Russ Johnson
Field Construction Representative

REI LAB Reservoirs Environmentol, Inc.

March 14, 2012

Laboratory Code:	RES
Subcontract Number:	NA
Laboratory Report:	RES 231545-1
Project # / P.O. #	None Given
Project Description:	3rd West Sub - RMP

Eldon Romney
R & R Environmental
47 West 9000 South #2
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 231545-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Gpvernment. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr
President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-00-15

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:	RES 231545-1
Client:	R & R Environmental
Client Project Number / P.O.:	None Given
Client Project Description:	3rd West Sub - RMP
Date Samples Received:	March 13, 2012
Analysis Type:	TEM, AHERA
Turnaround:	24 Hour
Date Samples Analyzed:	March 14, 2012

Client ID Number	Lab IO Number	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
		(mm^2)	(L)		(s/cc)	(s/cc)	(s/mm^2)
3W-031212 W	EM 872443	0.0800	965	ND	0.0050	BAS	BAS
3W-031212 N	EM 872444	0.0800	968	ND	0.0050	BAS	BAS
3W-031212 E	EM 872445	0.0800	966	ND	0.0050	BAS	BAS
3W-031212 S	EM 872446	0.0800	966	1	0.0050	0.0050	12.5

NA = Not Analyzed
ND = None Detected
BAS = Below Analytical Sensitivity
Average Grid Opening in mm^2 = 0.010

Filter Material = Mixed Cellulose Ester
Filter Diameter = 25 mm
Effective Filter Area = 385 sq mm

DATA QA

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number:	RES 231545-1
Client:	R & R Environmental
Client Project Number / P.O.:	None Given
Client Project Description:	3rd West Sub - RMP
Date Samples Received:	March 13, 2012
Analysis Type:	TEM, AHERA
Turnaround:	24 Hour
Date Samples Analyzed:	March 14, 2012

Client ID Number	Lab ID Number	Asbestos Mineral	Asbestos Structure Types*				Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for Concentration
			Fibers	Bundles	Clusters	Matrices			
3W-031212 W	EM 872443	ND	0	0	0	0	0	0	0
3W-031212 N	EM 872444	ND	0	0	0	0	0	0	0
3W-031212 E	EM 872445	ND	0	0	0	0	0	0	0
3W-031212 S	EM 872446	Trem-Act	1	0	0	0	0	0	1

*See Analytical Procedure for definitions

**C = Excluded from total due to lack of confirmation

**L = Excluded from total for length less than 0.5 micron (AHERA only)

**A = Excluded from total due to incorrect aspect ratio

ND = None Detected

RES 231545

Due Date: 3-14-12
Due Time: 9am

Reservnirs Environmental, Inc.

5801 Logan St. Denver, CO 80216 • Ph: 303 964-1986 • Fax 303-477-4278 • Toll Free :866 RESI-ENV
Pager : 303-509-2098

Page 1 of 1

INVOICE TO: (IF DIFFERENT) | **CONTACT INFORMATION:**

Company: R&R Environmental	Company:	Contact: Dave Roskelley	Contact:
Address: 47 W 9090 S #2 Sandy Ut. 84070	Address:	Phone:	Phone:
		Fax:	Fax:
		Cell/pager: 801 541-1035	Cell/pager:
Project Number and/or P.O. #:		Final Data Deliverable Email Address:	
Project Description/Location: 3rd West Sub. RMP		dave@rreniro.com	

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm
PLM / PCM / (TEM) ___ RUSH (Same Day) X PRIORITY (Next Day) ___STANDARD
(Rush PCM = 2hr, TEM = 6hr.)

CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm
Metal(s) / Dust ___ RUSH ___ 24 hr. ___3-5 Day
RCRA 8 / Metals & Welding Fume Scan / TCLP ___ RUSH ___ 5 day ___10 day
Organics ___ 24 hr. ___ 3 day ___5 Day
Prior notification is required for RUSH turnarounds.

MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm
E.coli O157:H7, Coliforms, S.aureus ___ 24 hr. ___2 Day ___3-5 Day
Salmonella, Listeria, E.coli, APC, Y & M ___ 48 Hr. ___3-5 Day
Mold ___ RUSH ___24 Hr ___48 Hr ___3 Day ___5 Day

Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.

Special Instructions:

REQUESTED ANALYSIS

Client sample ID number (Sample ID's must be unique)	PLM - Short report, Long report, Point Count	TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-vac, ISO-Indirect Preps	PCM - 7400A, 7400B, OSHA	DUST - Total, Respirable	METALS - Analyte(s) RCRA 8, TCLP, Welding Fume, Metals Scan	ORGANICS - METH	MICROBIOLOGY: Salmonella: +/-	E.coli O157:H7: +/-	Listeria: +/-	Aerobic Plate Count: +/- or Quantification	E.coli: +/- or Quantification	Coliforms: +/- or Quantification	S.aureus: +/- or Quantification	Y & M: +/- or Quantification	Mold: +/-, Identification, Quantification	SAMPLER'S INITIALS OR OTHER NOTES	Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yy	Time Collected hh/mm a/p	EM Number (Laboratory Use Only)
1 3W-031212W		X															965	A		3/12/12		572443
2 3W-031212N		↓															968	↓		↓		44
3 3W-031212E																	966					45
4 3W-031212S																	966					46
5																						
6																						
7																						
8																						
9																						
10																						

VALID MATRIX CODES

Air = A	Bulk = B
Dust = D	Paint = P
Soil = S	Wipe = W
Swab = SW	F = Food
Drinking Water = DW	Waste Water = WW
O = Other	

ASTM E1792 approved wipe media only

LAB NOTES:

Number of samples received: 4 (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from this inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days. failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: [signature] Fed Ex Date/Time: 3/12/12

Laboratory Use Only
Received By: [signature] Date/Time: 3/13/12 9am Carrier: Fedex

Sample Condition: On Ice: Yes / No; Sealed: Yes / No; Intact: (Yes) / No
Temp. (F°) ____

Results:														
Contact Paul	Phone Email Fax	Date 3/14/12	Time 9:55a	Initials TB	Contact	Phone Email Fax	Date	Time	Initials
Contact	Phone Email Fax	Data	Tima	Initials	Contact	Phons Email Fax	Date	Time	Initials

fedex # 7733 2989 2761

Attachment I

Key to Count Sheets
Count Sheets
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type	Structure Types
A = Amosite	F = Fiber
An = Anthophyllite	B = Bundle
C = Chrysotile	C = Cluster
Cr = Crocidolite	M = Matrix
T = Tremolite	

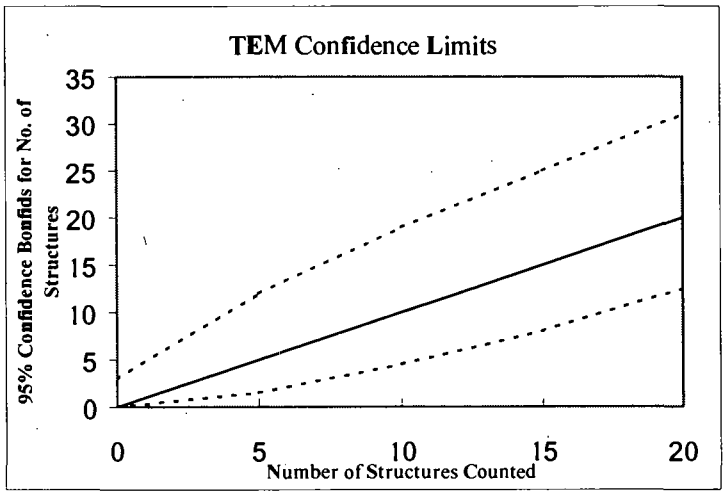
ND = no structures detected
M = other structure associated with a matrix
NAM = Non Asbestos Mineral
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr	Paul D. LoScalzo
Nathan DelHierro	Mark Steiner
Angela Heitger	Norberto Zimbleman
Jonathan Bernard	Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid openina area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mni2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R+R
Samole Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	965
Date received by lab	3/13/12
Lab Job Numben	231545
Lab Sample Number:	872443

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applisd to secondary filter (ml)	

Analyzed by	JB
Analysis date	3/14/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Stmcture Type	No. of Stnjctures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	K4-6	ND												
	H4-6	ND			Prep A		80% content			5-10% debris				
	G4-6	ND			Prep B		60% content			5-10% debris				
	F4-6	ND												
B	E4-4	ND							AB	3/14/12				
	C4-4	ND												
	B4-4	ND												
	E3-1	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R+R
Sample Tyoe (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	968
Date received by lab	3/13/12
Lab Job Number:	231545
Lab Sample Number:	572444

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	3/14/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	K2-3	ND												
	H2-3	ND			Prep A		70	%	Chrysotile	5-7	% debris			
	G2-3	ND			Prep B		70	%	Chrysotile	5-7	% debris			
	F2-3	A/D												
B	F4-1	ND							JB	3/14/12				
	E4-1	ND												
	C4-1	ND												
	E3-4	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	966
Date received by lab	3/13/12
Lab Job Number:	231545
Lab Sample Number:	872445

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	3/14/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H3-3	ND												
	G3-3	ND			Preps A+B ~80% unfmt						5% ok [illegible]			
	F3-3	ND												
	E3-3	ND			JB 3/14/12									
B	H3-3	ND												
	G3-3	ND												
	F3-3	ND												
	E3-3	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instroment	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Maanification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R+R
Samble Tyoe (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	966
Date received by lab	3/13/12
Lab Job Number:	231545
Lab Sample Nutnber:	872446

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	3/14/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	K3-1	ND												
	H3-1	ND				Prep A		80% in tact		5-7% debris				
	G3-1	ND				Prep B		60% in tact		5-7% debris				
	F3-1	ND												
B	H4-3	F		1	7	4	ADx	TREM/ACT						
	G4-3	ND												
	F4-3	ND												
	E4-3	ND												

JB 3/14/12

LA = Libby-type amphibole OA = Olher (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm^2 (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm^2 (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber:	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
Bundle:	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
Cluster:	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
Matrix:	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50^{th} structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm^2 clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

$$\text{Area Analyzed, } mm^2 = \#\text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\#\text{ Asbestos Structures}}{\#\text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area } (mm^2)}{\text{Average GO area } (mm^2)} \times \frac{1L}{1000cc}$$

$$\text{Filter loading, s/mm}^2 = \frac{\#\text{ Asbestos structures}}{\text{Area Analyzed } (mm^2)}$$

GO = TEM grid opening

File: Shared on server T/Offforms.sg/AHERA Procedures
Revised: 02/27/02

REI LAB Reservoirs Environmentol, Inc.

March 15, 2012

Laboratory Code:	RES
Subcontract Number:	NA
Laboratory Report:	RES 231640-1
Project # / P.O. #	None Given
Project Description:	3rd West Sub - RMP

Eldon Romney
R & R Environmental
47 West 9000 South #2
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 231640-1 Is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr
President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30 0018

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:	RES 231640-1
Client:	R & R Environmental
Client Project Number / P.O.:	None Given
Client Project Description:	3rd West Sub - RMP
Date Samples Received:	Marctl 14, 2012
Analysis Type:	TEM, AHERA
Turnaround:	24 Hour
Date Samples Analyzed:	March 14, 2012

Client ID Number	Lab ID Number	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
		(mm^2)	(L)		(s/cc)	(s/cc)	(s/mm^2)
3W-031312 W	EM 872644	0.0900	936	ND	0.0046	BAS	BAS
3W-031312 N	EM 872645	0.0900	936	3	0.0046	0.0137	33.3
3W-031312 E	EM 872646	0.0900	936	ND	0.0046	BAS	BAS
3W-031312 S	EM 872647	0.0900	936	2	0.0046	0.0091	22.2

NA = Not Analyzed
ND = None Detected
BAS = Below Analytical Sensitivity
Average Grid Opening in mm^2 = 0.010

Filter Material = Mixed Cellulose Ester
Filter Diameter = 25 mm
Effective Filter Area = 385 sq mm

DATA QA

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE IL SUMMARY OF ANALYTICAL DATA

RES Job Number:	RES 231640-1
Client:	R & R Environmental
Client Project Number / P.O.:	None Given
Client Project Description:	3rd West Sub - RMP
Date Samples Received:	March 14, 2012
Analysis Type:	TEM, AHERA
Turnaround:	24 Hour
Date Samples Analyzed:	March 14, 2012

Client ID Number	Lab ID Number	Asbestos Mineral	Asbestos Structure Types*				Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for Concentration
			Fibers	Bundles	Clusters	Matrices			
3W-031312 W	EM 872644	ND	0	0	0	0	0	0	0
3W-031312 N	EM 872645	Chrysotile	1	2	0	0	1	0	3
3W-031312 E	EM 872646	ND	0	0	0	0	0	0	0
3W-031312 S	EM 872647	Chrysotile	2	0	0	0	0	0	2

*See Analytical Procedure for definitions

**C = Excluded from total due to lack of confirmation

**L = Excluded from total for length less than 0.5 micron (AHERA only)

**A = Excluded from total due to incorrect aspect ratio

ND = None Detected

Due Date: 3/5/12
Due Time: 845a

RES 231640

REI LAB Reservoirs Environmental, Inc.
5801 Logan St Denver, CO 80216 • Ph: 303 964-1986 • Fax 303-477-4275 • Toll Free :866 RESI-ENV
Pager : 303-589-2093

Page 1 of 1

INVOICE TO: (IF DIFFERENT) | CONTACT INFORMATION:

Company: R&R Environmental	Company:	Contact: Dave Roskelley	Contact:
Address: 47 W 9000 S #2	Address:	Phone:	Phone:
Sandy, UT. 84070		Fax:	Fax:
		Cell/pager: 801 541-1035	Cell/pager:
Project Number and/or P.O. #:		Final Data Deliverable Email Address:	
Project Description/Location: 3rd West Sub - RAMP		dave@rrenviro.com	

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm
PLM / PCM / TEM (circled TEM) ___ RUSH (Same Day) X PRIORITY (Next Day) ___ STANDARD
(Rush PCM = 2hr, TEM = 6hr.)

CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm
Metal(s) / Dust ___ RUSH ___ 24 hr. ___ 3-5 Day
RCRA 8 / Metals & Welding Fume Scan / TCLP ___ RUSH ___ 5 day ___ 10 day
Organics ___ 24 hr. ___ 3 day ___ 5 Day
Prior notification is required for RUSH turnarounds.

MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 5pm
E.coli O157:H7, Coliforms, S.aureus ___ 24 hr. ___ 2 Day ___ 3-5 Day
Salmonella, Listeria, E.coli, APC, Y & M ___ 48 Hr. ___ 3-5 Day
Mold ___ RUSH ___ 24 Hr ___ 48 Hr ___ 3 Day ___ 5 Day

Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.

Special Instructions:

REQUESTED ANALYSIS: PLM - Short report, Long report, Point Count; TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-vac, ISO-Indirect Preps; PCM - 7400A, 7400B, OSHA; DUST - Total, Respirable; METALS - Analyte(s); RCRA 8, TCLP, Welding Fume, Metals Scan; ORGANICS - METH; MICROBIOLOGY: Salmonella: +/-; E.coli O157:H7: +/-; Listeria: +/-; Aerobic Plate Count: +/- or Quantification; E.coli: +/- or Quantification; Coliforms: +/- or Quantification; S.aureus: +/- or Quantification; Y & M: +/- or Quantification; Mold: +/-, Identification, Quantification; SAMPLER'S INITIALS OR OTHER NOTES

VALID MATRIX CODES: Air = A; Bulk = B; Dust = D; Paint = P; Soil = S; Wipe = W; Swab = SW; F = Food; Drinking Water = DW; Waste Water = WW; O = Other
ASTM E1792 approved wipe media only

LAB NOTES:

#	Client sample ID number (Sample ID's must be unique)	TEM	Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yy	Time Collected hh/mm a/p	EM Number (Laboratory Use Only)
1	3W-031312 W	X	936	A		3/13/12		892644
2	3W-031312 N	↓	936	↓		↓		45
3	3W-031312 E	↓	936	↓		↓		46
4	3W-031312 S	↓	936	↓		↓		47
5								
6								
7								
8								
9								
10								

Number of samples received: 4 (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: [signature] FedEx	Date/Time: 3/13/12	Sample Condition:	On Ice / Sealed / Intact
Laboratory Use Only Received By: [signature]	Date/Time: 3/14/12 845 Carrier: FedEx	Temp. (F°) ____	Yes / No · Yes / No · Yes / No

Results:	Contact	Phone Email Fax	Date	Time	Initials	Contact	Phone Email Fax	Date	Time	Initials
	Dave	Phone	3/14	9:45p			Email			

left msg

Tracking #: 7933 2989 4904

7-2011_version 1

Attachment I

Key to Count Sheets
Count Sheets
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type	Structure Types
A = Amosite	F = Fiber
An = Anthophyllite	B = Bundle
C = Chrysotile	C = Cluster
Cr = Crocidolite	M = Matrix
T = Tremolite	

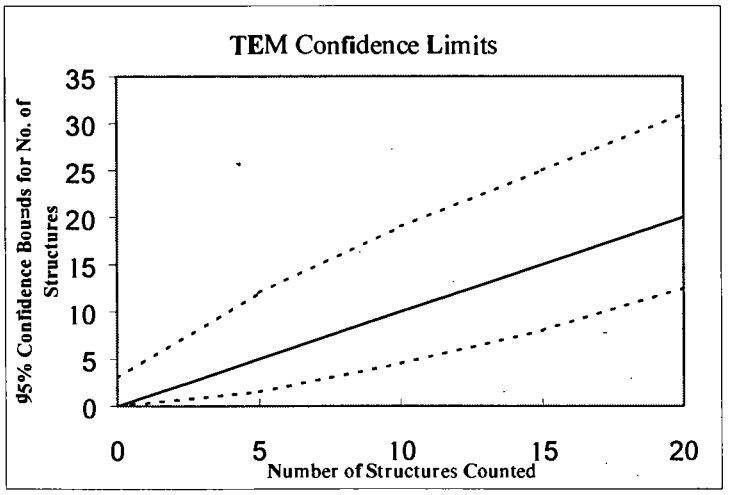
ND = no structures detected
M = other structure associated with a matrix
NAM = Non Asbestos Mineral
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr
Nathan DelHierro
Angela Heitger
Jonathan Bernard
Paul D. LoScalzo
Mark Steiner
Norberto Zimbleman
Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX II (S)
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.010
Scale: 1L =	0.28 um
Scale: 1D =	0.56 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	PACE
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	526
Date received by lab	3/14/12
Lab Job Number:	23164
Lab Sample Number:	923649

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	MC
Analysis date	3/14/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	K5-6	ND												
	H5-6	ND			Prep A 90% intact 5-7% debris									
	G5-6	ND			Prep Blank				3/14/12					
	F5-6	ND												
	E5-6	ND												
B	K6-1	ND												
	H6-1	ND												
	G6-1	ND												
	F6-1	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.010
Scale: 1L =	0.28 um
Scale: 1D =	0.56 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	[illegible]
QA Type	[illegible]

Client :	[illegible]
Sample Type (A=Air, D=Dust):	[illegible]
Air volume (L) or dust area (cm2)	[illegible]
Date received by lab	[illegible]
Lab Job Number:	[illegible]
Lab Sample Number:	[illegible]

Analyzed by	[illegible]
Analysis date	3/14/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AL
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	G4-3	B		1	23	10	CD		/		/			
		B		2	5	3	CD		/		/			
		F		3	2	1	CD		/		—			
	F4-3	ND												
	E4-3	ND			Orp A		scr. Hact 5-7% debris							
	C4-3	ND												
	B4-3	ND												
B	G4-6	ND												
	F4-6	ND												
	E4-6	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

LAB NAME	REI	Lab Job Number:	231640	Analyzed by:	[illegible]
		Lab Sample Number	872645	Analysis Date:	3/14/12

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
	C4-6	ND												
						Prev B 80L [illegible] 5-7 [illegible] [illegible] 3/14/12								

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX - N, S (S circled)
Voltage (KV)	100 KV
Magnification	20KX (circled) 10KX
Grid opening area (mm2)	0.010
Scale: 1L =	0.28 um
Scale: 1D =	0.56 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	[illegible]
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	[illegible]
Date received by lab	[illegible]
Lab Job Number:	[illegible]
Lab Sample Number:	[illegible]

Analyzed by	[illegible]
Analysis date	3/14/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AL
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	G4-6	ND												
	F4-6	ND			Prep A 852 micro 5-7? debris									
	E4-6	ND			Prep B NA			[illegible] 3/14/12						
	C4-6	ND												
	B4-6	ND												
B	H3-1	ND												
	G3-1	ND												
	F3-1	ND												
	E3-1	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.0105
Scale: 1L =	0.28 um
Scale: 1D =	0.56 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	[illegible]
Sample Type (A=Air, D=Dust):	[illegible]
Air volume (L) or dust area (cm2)	[illegible]
Date received by lab	[illegible]
Lab Job Number:	[illegible]
Lab Sample Number:	[illegible]

Analyzed by	[illegible]
Analysis date	3/14/12
Method (D=Direct, I=Indirect, IA=Indirect ashed)	D
Counting rules (ISO, AHERA, ASTM)	AL
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	K5-3	ND												
	H5-3	ND												
	G5-3	ND												
	F5-3	F		1	2.5	2	CD		/		/			
	E5-3	ND					Prep A 90% intact 5-7% debris							
B	K6-4	F		2	3.5	1	CD		/		/			
	H6-4	ND					Prep B ~A [illegible] 3/14/12							
	G6-4	ND												
	F6-4	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm^2 (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm^2 (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber:	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
Bundle:	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
Cluster:	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
Matrix:	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50^{th} structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm^2 clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

$$\text{Area Analyzed, } mm^2 = \#\text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\#\text{ Asbestos Structures}}{\#\text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area } (mm^2)}{\text{Average GO area } (mm^2)} \times \frac{1L}{1000cc}$$

$$\text{Filter loading, s/mm2} = \frac{\#\text{ Asbestos structures}}{\text{Area Analyzed } (mm^2)}$$

GO = TEM grid opening

REI LAB Reservoirs Environmentol, Inc.

March 16, 2012

Laboratory Code:	RES
Subcontract Number:	NA
Laboratory Report:	RES 231728-1
Project # / P.O. #	None Given
Project Description:	3rd West Sub - RMP

David Roskelley
R & R Environmental
47 West 9000 South #2
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 231728-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr
President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:	RES 231728-1
Client:	R & R Environmental
Client Project Number / P.O.:	None Given
Client Project Description:	3rd West Sub - RMP
Date Samples Received:	March 15, 2012
Analysis Type:	TEM, AHERA
Turnaround:	24 Hour
Date Samples Analyzed:	March 15, 2012

Client ID Number	Lab ID Number	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
		(mm^2)	(L)		(s/cc)	(s/cc)	(s/mm^2)
3W-031412 W	EM 872786	0.1000	972	1	0.0040	0.0040	10.0
3W-031412 N	EM 872787	0.1000	972	ND	0.0040	BAS	BAS
3W-031412 E	EM 872788	0.0400	972	6	0.0099	0.0594	150.0
3W-031412 S	EM 872789	0.1000	986	ND	0.0039	BAS	BAS

NA = Not Analyzed
ND = None Detected
BAS = Below Analytical Sensitivity
Average Grid Opening in mm^2 = 0.010

Filter Material = Mixed Cellulose Ester
Filter Diameter = 25 mm
Effective Filter Area = 385 sq mm

DATA QA

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number:	RES 231728-1
Client:	R & R Environmental
Client Project Number / P.O.:	None Given
Client Project Description:	3rd West Sub - RMP
Date Samples Received:	March 15, 2012
Analysis Type:	TEM, AHERA
Turnaround:	24 Hour
Date Samples Analyzed:	March 15, 2012

Client ID Number	Lab ID Number	Asbestos Mineral	Asbestos Structure Types*				Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for Concentration
			Fibers	Bundles	Clusters	Matrices			
3W-031412 W	EM 872786	Chrysotile	1	0	0	0	0	0	1
3W-031412 N	EM 872787	ND	0	0	0	0	0	0	0
3W-031412 E	EM 872788	Chrysotile	6	1	0	0	1**A	0	7
3W-031412 S	EM 872789	ND	0	0	0	0	0	0	0

*See Analytical Procedure for definitions

**C = Excluded from total due to lack of confirmation

**L = Excluded from total for length less than 0.5 micron (AHERA only)

**A = Excluded from total due to incorrect aspect ratio

ND = None Detected

Due Date: 3-16-12
Due Time: 920

Reservairs Environmental, Inc.

5801 Logan St. Denver, CO 80216 • Ph: 303 664-1986 • Fax 303-477-4275 • Toll Free :866 RESI-ENV
Pager : 303-509-2098

Jo
p

RES 231728

INVOICE TO: (IF DIFFERENT)

Company: R&R Environmental	Company:
Address: 47W9800S #2 Sandy, Ut. 84070	Address:
Project Number and/or P.O. #:	
Project Description/Location: 3rd West Sub - RMP	

CONTACT INFORMATION:

Contact: Dave Roskelley	Contact:
Phone:	Phone:
Fax:	Fax:
Cell/pager: 801 541-1035	Cell/pager:
Final Data Deliverable Email Address: dave@rrenviro.com	

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm

PLM / PCM / TEM ___ RUSH (Sams Day) X PRIORITY (Next Day) ___ STANDARD
(Rush PCM = 2hr, TEM = 6hr.)

CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm

Metal(s) / Dust ___ RUSH ___ 24 hr. ___ 3-5 Day
RCRA 8 / Metals & Welding Fume Scan / TCLP ___ RUSH ___ 5 day ___ 10 day
Organics ___ 24 hr. ___ 3 day ___ 5 Day

Prior notification is required for RUSH turnarounds.

MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm

E.coli O157:H7, Coliforms, S.aureus ___ 24 hr. ___ 2 Day ___ 3-5 Day
Salmonella, Listeria, E.coli, APC, Y & M ___ 48 Hr. ___ 3-5 Day
Mold ___ RUSH ___ 24 Hr ___ 48 Hr ___ 3 Day ___ 5 Day

Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.

Special Instructions:

REQUESTED ANALYSIS

Client sample ID number (Sample ID's must be unique)	PLM - Short report, Long report, Point Count	TEM - AHERA, Level II, 7402, ISO, +/- Quant, Semi-quant, Micro-vac, ISO-Indirect Preps	PCM - 7400A, 7400B, OSHA	DUST - Total, Respirable	METALS - Analyte(s) RCRA 8, TCLP, Welding Fume, Metals Scan	ORGANICS - METH	MICROBIOLOGY: Salmonella: +/-	E.coli O157:H7: +/-	Listeria: +/-	Aerobic Plate Count: +/- or Quantification	E.coli: +/- or Quantification	Coliforms: +/- or Quantification	S.aureus: +/- or Quantification	Y & M: +/- or Quantification	Mold: +/-, Identification, Quantification	SAMPLER'S INITIALS OR OTHER NOTES	Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yy	Time Collected hh/mm a/p	EM Number (Laboratory Use Only)
1 3W-031412W		X															972	A		3/14/12		87786
2 3W-031412N		↓															972	↓		↓		87
3 3W-031412E																	972					88
4 3W-031412S																	986					89
5																						
6																						
7																						
8																						
9																						
10																						

VALID MATRIX CODES

Air = A	Bulk = B
Dust = D	Paint = P
Soil = S	Wipe = W
Swab = SW	F = Food
Drinking Water = DW	Waste Water = WW
O = Other	

ASTM E1792 approved wipe media only

LAB NOTES:

Number of samples received: 4 (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.6% monthly interest surcharge.

Relinquished By: Justin Kaye Fed Ex Date/Time: 3/14/12

Laboratory Use Only
Received By: [illegible] Date/Time 3-15-12 920 Carrier: Fedex

Sample Condition: Temp. (F°) ____ On Ice: Yes / No Sealed: Yes / No Intact: Yes / No

Results:	Contact	Phone	Email	Fax	Date	Time	Initials	Contact	Phone	Email	Fax	Date	Time	Initials
	Contact	Phone	Email	Fax	Date	Time	Initials	Contact	Phone	Email	Fax	Date	Time	Initials

Attachment I

Key to Count Sheets
Count Sheets
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type	Structure Types
A = Amosite	F = Fiber
An = Anthophyllite	B = Bundle
C = Chrysotile	C = Cluster
Cr = Crocidolite	M = Matrix
T = Tremolite	

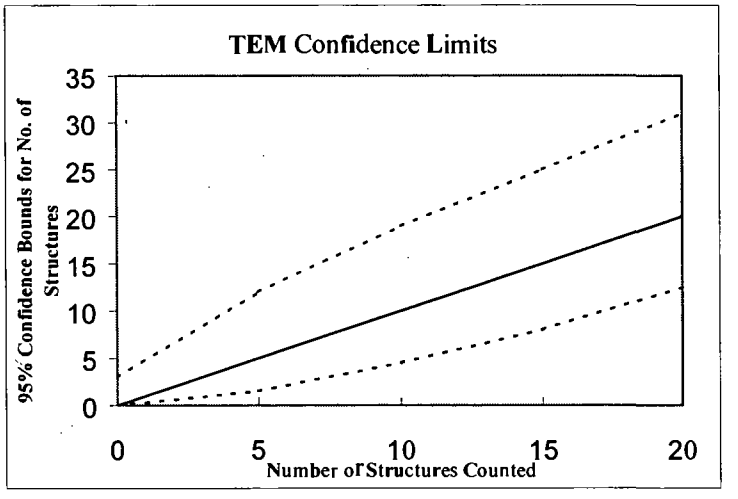
ND = no structures detected
M = other structure associated with a matrix
NAM = Non Asbestos Mineral
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr
Nathan DelHierro
Angela Heitger
Jonathan Bernard
Paul D. LoScalzo
Mark Steiner
Norberto Zimbleman
Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	Reservoirs Environmental,Inc.
Instrument	JEOL 100 CX N
Voltage (KV)	100 KV
Magnification	20KX
Grid opening area (mm2)	0.010
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	n/a
QA Type	Not QA

Client:	R&R Environmental
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	972
Date received by lab	03/15/2012
Lab Job Number:	231728
Lab Sample Number:	872786

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	n.zimbelman
Analysis date	03/15/2012
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Client Sample ID Number 3W-031412W

10. S/mm²

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H2-1	ND												
	H2-6	ND												
	K2-3	ND												
	K3-6	ND												
	K4-1	ND												
	H4-6	ND				A: 80% INT - 3-5% debris)								
B	H4-6	ND												
	H4-1	ND												
	H3-6	ND				B: 90% INT. 3-5% debris)								
	G3-4	F		1	3½	1	CD		1		\	1		

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	Reservoirs Environmental,Inc.
Instrument	JEOL 100 CX N
Voltage (KV)	100 KV
Magnification	20KX
Grid opening area (mm2)	0.010
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	n/a
QA Type	Not QA

Client:	R&R Environmental
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	972
Date received by lab	03/15/2012
Lab Job Number:	231728
Lab Sample Number:	872787

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	n.zimbelman
Analysis date	03/15/2012
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Client Sample ID Number 3W-031412N

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	G1-6	ND												
	H4-1	ND												
	H5-1	ND												
	G4-6	ND												
	F4-6	ND												
	E1-6	ND					A: >90% cont. w/ NAM							
B	E4-6	ND												
	E4-4	ND												
	C4-4	ND												
	A4-1	ND					B: w/ 80% cont. w/ NAM							

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

NBX

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	Reservoirs Environmental, Inc.
Instrument	JEOL 100 CX N
Voltage (KV)	100 KV
Magnification	20KX
Grid opening area (mm2)	0.010
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	n/a
QA Type	Not QA

Client:	R&R Environmental
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	972
Date received by lab	03/15/2012
Lab Job Number:	231728
Lab Sample Number:	872788

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	n.zimbelman
Analysis date	03/15/2012
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Client Sample ID Number: SW-031412E

150. S/mm² /0.04 mm² Analyzed

42
03.16.12

A: 60 ?
3-5 ?

Grid	Grid Opening	Structure Type	No. of Structures Primary	No. of Structures Total	Dimensions Length	Dimensions Width	Identification	Mineral Class Amphibole	C	NAM	Sketch/Comments	Sketch	Photo	EDS
A	B3-1	F		1	7	1	CD		✓			1		
		B		2	5	1	CD		✓			1		
		F		3	2 1/2	1	CD		✓			1		
		F		4	2	1	CD		✓			1		
B	F2-3	F		5	2	1	CD		✓			1		
	E2-3	ND												
	B3-3	F		0	1 1/2	1	CD		✓		EXCL. <0.5 um L.	1		
		F		6	2 1/2	1	CD		✓			1		
							?	B ~ A						

1 = yes, blank = no

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	Reservoire Environmental,Inc.	Client:	R&R Environmental	Analyzed by	n.zimbelman
Instrument	JEOL 100 CX N	Sample Type (A=Air, D=Dust):	A	Analysis date	03/15/2012
Voltage (KV)	100 KV	Air volume (L) or dust area (cm2)	986	Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Magnification	20KX	Date received by lab	03/15/2012	Counting rules (ISO, AHERA, ASTM)	Ahera
Grid opening area (mm2)	0.010	Lab Job Number:	231728	Grid storage location	Month Analyzed
Scale: 1L =	0.28 um	Lab Sample Number:	872789	Scope Alignment	Date Analyzed
Scale: 1D =	0.056 um				
Primary filter area (mm2)	385				
Secondary Filter Area (mm2)	n/a				
QA Type	Not QA				

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Client Sample ID Number: 3W-031412S

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	B2-5	ND												
	E2-1	ND												
	F2-3	ND												
	F4-1	ND				A: ~60	(Int. ~3 < Debris)							
B	E3-6	ND												
	E4-1	ND												
	E4-4	ND												
	F4-4	ND												
	G4-1	ND												
	G3-1	ND				B:	~75	(Int. ~ 3 < Debris)						

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

NZ

C:\Users\TEM.REI-LAB\Desktop\TEM Count Sheet rev.032012

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm^2 (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm^2 (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber:	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
Bundle:	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
Cluster:	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
Matrix:	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50^{th} structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm^2 clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

$$\text{Area Analyzed, } mm^2 = \#\text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\#\text{ Asbestos Structures}}{\#\text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area } (mm^2)}{\text{Average GO area } (mm^2)} \times \frac{1\text{L}}{1000\text{cc}}$$

$$\text{Filter loading, s/mm2} = \frac{\#\text{ Asbestos structures}}{\text{Area Analyzed } (mm^2)}$$

GO = TEM grid opening

File: Shared on server T/Offforms.sg/AHERA Procedures
Revised: 02/27/02

REI LAB Reservoirs Environmentoi, Inc.

March 19, 2012

Laboratory Code:	RES
Subcontract Number:	NA
Laboratory Report:	RES 231818-1
Project # / P.O. #	None Given
Project Description:	3rd West Sub - RMP

Eldon Romney
R & R Environmental
47 West 9000 South #2
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 231818-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr
President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:	RES 231818-1
Client:	R & R Environmental
Client Project Number / P.O.:	None Given
Client Project Description:	3rd West Sub - RMP
Date Samples Received:	March 16, 2012
Analysis Type:	TEM, AHERA
Turnaround:	6 Hour
Date Samples Analyzed:	March 17, 2012

Client ID Number	Lab ID Number	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
		(mm^2)	(L)		(s/cc)	(s/cc)	(s/mm^2)
3W-031512 W	EM 872918	0.1000	828	1	0.0046	0.0046	10.0
3W-031512 N	EM 872919	0.1000	826	ND	0.0047	BAS	BAS
3W-031512 E	EM 872920	0.1000	828	1	0.0046	0.0046	10.0
3W-031512 S	EM 872921	0.1000	828	ND	0.0046	BAS	BAS

NA = Not Analyzed
ND = None Detected
BAS = Below Analytical Sensitivity
Average Grid Opening in mm^2 = 0.010

Filter Material = Mixed Cellulose Ester
Filter Diameter = 25 mm
Effective Filter Area = 385 sq mm

Digitally signed by Elisha Elkerman
DN: CN = Elisha Elkerman, C = US, O = Reservoirs Environmental, Inc.
Date: 2012.03.19 10:30:18 -08'00'

DATA QA

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number:	RES 231818-1
Client:	R & R Environmental
Client Project Number / P.O.:	None Given
Client Project Description:	3rd West Sub - RMP
Date Samples Received:	March 16, 2012
Analysis Type:	TEM, AHERA
Turnaround:	6 Hour
Date Samples Analyzed:	March 17, 2012

Client ID Number	Lab ID Number	Asbestos Mineral	Asbestos Structure Types*				Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for Concentration
			Fibers	Bundles	Clusters	Matrices			
3W-031512 W	EM 872918	Chrysotile	1	0	0	0	0	0	1
3W-031512 N	EM 872919	ND	0	0	0	0	0	0	0
3W-031512 E	EM 872920	Chrysotile	0	0	0	1	0	0	1
3W-031512 S	EM 872921	ND	0	0	0	0	0	0	0

*See Analytical Procedure for definitions

**C = Excluded from total due to lack of confirmation

**L = Excluded from total for length less than 0.5 micron (AHERA only)

**A = Excluded from total due to incorrect aspect ratio

ND = None Detected

RES 231818

Due Date: 3-17-12
Due Time: 8:40

Reservoirs Environmental, Inc.

5801 Logan St Denver, CO 80216 • Ph: 303 964-1986 • Fax 303-477-4278 • Toll Free :866 REI-ENV
Pager : 303-509-2098

Job #
Page 1 of 1

INVOICE TO: (IF DIFFERENT)

Company: RER Environmental	Company:
Address: 47 W 9000S #2 Sandy UT. 84070	Address:
Project Number and/or P.O. #:	
Project Description/Location: 3rd West Sub - RAMP	

CONTACT INFORMATION:

Contact: Dave Rokelley	Contact:
Phone:	Phone:
Fax:	Fax:
Cell/pager:	Cell/pager:
Final Data Deliverable Email Address: dave@rrenviro.com	

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm
PLM / PCM / TEM ___ RUSH (Same Day) ___ PRIORITY (Next Day) ___ STANDARD
(Rush PCM = 2hr, TEM = 5hr.)

CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm
Metal(s) / Dust ___ RUSH ___ 24 hr. ___ 3-5 Day
RCRA 8 / Metals & Welding Fume Scan / TCLP ___ RUSH ___ 5 day ___ 10 day
Organics ___ 24 hr. ___ 3 day ___ 5 Day
Prior notification is required for RUSH turnarounds.

MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm
E.coli O157:H7, Coliforms, S.aureus ___ 24 hr. ___ 2 Day ___ 3-5 Day
Salmonella, Listeria, E.coli, APC, Y & M ___ 48 Hr. ___ 3-5 Day
Mold ___ RUSH ___ 24 Hr ___ 48 Hr ___ 3 Day ___ S Day

Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for nterhours, weekends and holidays.

Special Instructions:

	Client sample ID number (Sample ID's must be unique)	PLM - Short report, Long report, Point Count	TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-vac, ISO-Indirect Preps	PCM - 7400A, 7400B, OSHA	DUST - Total, Respirable	METALS - Analyte(s) RCRA 8, TCLP, Welding Fume, Metals Scan	ORGANICS - METH	MICROBIOLOGY: Salmonella: +/-	E.coli O157:H7: +/-	Listeria: +/-	Aerobic Plate Count: +/- or Quantification	E.coli: +/- or Quantification	Coliforms: +/- or Quantification	S.aureus: +/- or Quantification	Y & M: +/- or Quantification	Mold: +/-, Identification, Quantification	SAMPLER'S INITIALS OR OTHER NOTES	Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yy	Time Collected hh/mm a/p	EM Number (Laboratory Use Only)
1	3W-031512W		X															828	A		3/15/12		872918
2	~~3W-031515~~ 3W-031512N		↓															826	↓		↓		19
3	3W-031512E		↓															828	↓		↓		20
4	3W-031512S		↓															828	↓		↓		21
5																							
6																							
7																							
8																							
9																							
10																							

VALID MATRIX CODES

Air = A	Bulk = B
Dust = D	Paint = P
Soil = S	Wipe = W
Swab = SW	F = Food
Drinking Water = DW	Waste Water = WW
O = Other	

ASTM E1792 approved wipe media only

LAB NOTES:

Number of samples received: 4 (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: Justin Knight Fed Ex Date/Time: 3/15/12
Laboratory Use Only Received By: [signature] Date/Time: 3-16-12 8:40 Carrier: Fedex

Sample Condition: On Ice Yes / No Sealed Yes / No Intact Yes / No
Temp. (F°) ____

Results:

Contact	Dave	Phone Email Fax	Data 3/17	Time 10:30a	Initials		Contact		Phone Email Fax		Date		Time		Initials
Contact		Phone Email Fax	Date	Time	Initials		Contact		Phone Email Fax		Date		Time		Initials

left msg

7-2011_version 1

Attachment I

Key to Count Sheets
Count Sheets
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type	Structure Types
A = Amosite	F = Fiber
An = Anthophyllite	B = Bundle
C = Chrysotile	C = Cluster
Cr = Crocidolite	M = Matrix
T = Tremolite	

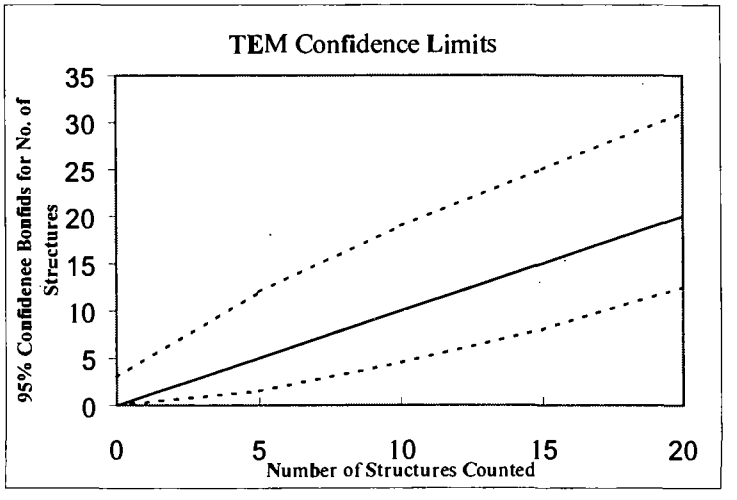
ND = no structures detected
M = other structure associated with a matrix
NAM = Non Asbestos Mineral
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr	Paul D. LoScalzo
Nathan DelHierro	Mark Steiner
Angela Heitger	Norberto Zimbleman
Jonathan Bernard	Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environinental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N $2
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R+R
Sample Tyoe (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	822
Date received by lab	3/16/12
Lab Job Number:	231878
Lab Sample Number:	872918

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	[illegible]
Analysis date.	3/16/12
Method (D=Direct, I=Indirect, IA=Indirect, asshed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Lenath	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H4-3	ND												
	G4-3	ND					Prep A dry, intact ST, debris							
	F4-3	ND					Prep B wet	Tangle		3/16/12				
	C4-3	ND												
	E4-3	ND												
B	L4-3	F		1	7	1	CD		/		[illegible]			
	K4-3	ND												
	H4-3	ND												
	G4-3	ND												
	F4-3	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N S2
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.26 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	826
Date received by lab	3/16/12
Lab Job Number	231818
Lab Sample Number	87291 9

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	CW
Analysis data	3/16/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	G5-1	ND												
	F5-1	ND			Prep A 85% matrix 5% debris									
	G5-1	ND			Prep B 1						3/16/12			
	C5-1	ND												
	C5-3	ND												
B	F3-6	ND												
	E3-6	ND												
	C3-6	ND												
	B3-6	ND												
	A3-6	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrumant	JEOL 100 CX N ~~S~~
Voltage (KV)	100 KV
Magnification	~~20KX~~ 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Seoondary Filter Area (mm2)	
QA Type	

Client :	R+R
Samole Tyoe (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	828
Date received by lab	3/16/12
Lab Job Number:	231818
Lab Sample Number:	872920

F-Factor Calculation (Indirect Preos Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	CW
Analysis date	3/16/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting mles (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primaiy	Total	Length	Width		Amohiboie	C	NAM		Sketch	Photo	EDS
A	K4-4	ND												
	H4-4	ND				Prep	A 90% intact 5%, debris							
	G4-4	ND				Prep	B 80% intact 5%, debris				3/16/12			
	F4-4	ND												
	E4-4	ND												
B	F4-1	ND												
	E4-1	ND												
	C4-1	ND												
	C3-4	M		1	2	1	CD		—					
	B3-4	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	828
Date received by lab	3/16/12
Lab Job Number:	231818
Lab Sample Number:	872921

Analyzed by	[illegible]
Analysis date	3/16/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H3-6	ND												
	G3-6	ND			Prep 80% intact 5% debris									
	F3-6	ND			Prep 70% intact 5% debris						[initials] 3/16/12			
	E3-6	ND												
	C3-6	ND												
B	G4-1	ND												
	F4-1	ND												
	E4-1	ND												
	F4-3	ND												
	E4-3	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm^2 (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm^2 (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber:	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
Bundle:	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
Cluster:	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
Matrix:	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50^{th} structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm^2 clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

$$\text{Area Analyzed, } mm^2 = \#\text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\#\text{ Asbestos Structures}}{\#\text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff Filter Area } (mm^2)}{\text{Average GO area } (mm^2)} \times \frac{1L}{1000cc}$$

$$\text{Filter loading, s/mm2} = \frac{\#\text{ Asbestos structures}}{\text{Area Analyzed } (mm^2)}$$

GO = TEM grid opening

File: Shared on server T/Offforms.sg/AHERA Procedures
Revised: 02/27/02

Reservoirs Environmentol, Inc.

March 20, 2012

Laboratory Code:	RES
Subcontract Number:	NA
Laboratory Report:	RES 231934-1
Project # / P.O. #	None Given
Project Description:	3rd West Sub - RMP

Eldon Romney
R & R Environmental
47 West 9000 South #2
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. Is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 231934-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr
President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:	RES 231934-1
Client:	R & R Environmental
Client Project Number / P.O.:	None Given
Client Project Description:	3rd West Sub - RMP
Date Samples Received:	March 19, 2012
Analysis Type:	TEM, AHERA
Turnaround:	24 Hour
Date Samples Analyzed:	March 20, 2012

Client ID Number	Lab ID Number	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
		(mm^2)	(L)		(s/cc)	(s/cc)	(s/mm^2)
3W-031612 N	EM 873119	0.0900	909	ND	0.0047	BAS	BAS
3W-031612 E	EM 873120	0.0900	911	ND	0.0047	BAS	BAS
3W-031612 W	EM 873121	0.0900	909	ND	0.0047	BAS	BAS
3W-031612 S	EM 873122	0.0900	909	ND	0.0047	BAS	BAS

NA = Not Analyzed
ND = None Detected
BAS = Below Analytical Sensitivity
Average Grid Opening in mm^2 = 0.010

Filter Material = Mixed Cellulose Ester
Filter Diameter = 25 mm
Effective Filter Area = 385 sq mm

DATA QA

RES 231934

Due Date: 3-20-12
Due Time: 955

Reservoirs Environmental, Inc.

5801 Logan St. Denver, CO 80216 • Ph: 303 894-1999 • Fax 303-477-4279 • Toll Free :866 RESI-ENV
Pager : 303-909-2098

Page 1 of

INVOICE TO: (IF DIFFERENT)

Company: R&R Environmental	Company:
Address: 47 W 9000S #2 Sandy Ut. 84070	Address:
Project Number and/or P.O. #:	
Project Description/Location: 300 West Sub - RMP	

CONTACT INFORMATION:

Contact: Dave Roskelley	Contact:
Phone:	Phone:
Fax:	Fax:
Cell/pager: 801 541-1035	Cell/pager:
Final Data Deliverable Email Address:	

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm

PLM / PCM / (TEM) ___ RUSH (Same Day) X PRIORITY (Next Day) ___ STANDARD
(Rush PCM = 2hr, TEM = 6hr.)

CHEMISTRY LABORATORY HOURS: Weekdays: 5am - 5pm

Metal(s) / Oust ___ RUSH ___ 24 hr. ___ 3-5 Day
RCRA 8 / Metals & Welding Fume Scan / TCLP ___ RUSH ___ 5 day ___ 10 day
Organics ___ 24 hr. ___ 3 day ___ 5 Day

Prior notification is required for RUSH turnarounds.

MICROBIOLOGY LABORATORY HOURS: Weekdays: 8am - 6pm

E.coli O157:H7, Conforms, S.aureus ___ 24 hr. ___ 2 Day ___ 3-5 Day
Salmonella, Listeria, E.coli, APC, Y & M ___ 48 Hr. ___ 3-5 Day
Mold ___ RUSH ___ 24 Hr ___ 48 Hr ___ 3 Day ___ 5 Day

Turnaround times established a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.

Special Instructions:

REQUESTED ANALYSIS

Client sample ID number (Sample ID's must be unique)	PLM - Short report, Long report, Point Count	TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-vac, ISO-Indirect Preps	PCM - 7400A, 7400B, OSHA	DUST - Total, Respirable	METALS - Analyte(s) RCRA 8, TCLP, Welding Fume, Metals Scan	ORGANICS - METH	MICROBIOLOGY: Salmonella: +/-	E.coli O157:H7: +/-	Listeria: +/-	Aerobic Plate Count: +/- or Quantification	E.coli: +/- or Quantification	Coliforms: +/- or Quantification	S.aureus: +/- or Quantification	Y & M: +/- or Quantification	Mold: +/-, Identification, Quantification	SAMPLER'S INITIALS OR OTHER NOTES	Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yy	Time Collected hh/mm a/p	EM Number (Laboratory Use Only)
1 3W-031612M		X															909	A		3/16/12		873119
2 3W-031612E		↓															911	↓		↓		20
3 3W-031612W																	909					21
4 3W-031612S																	909					22
5																						
6																						
7																						
8																						
9																						
10																						

VALID MATRIX CODES

Air = A	Bulk = B
Dust = D	Paint = P
Soil = S	Wipe = W
Swab = SW	F = Food
Drinking Water = DW	Waste Water = WW
O = Other	

ASTM E1792 approved wipe media only

LAB NOTES:

3/20/12

Number of samples received: 4 (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: [signature] Fed Ex Date/Time: 3/16/12

Laboratory Use Only
Received By: [signature] Date/Time: 3-19-12 950 Carrier: Fed Ex

Sample Condition: On Ice Yes / No — Sealed Yes / No — Intact Yes / No
Temp. (F°) ____

Results:	Contact	Phone	Email	Fax	Date	Time	Initials	Contact	Phone	Email	Fax	Date	Time	Initials
												3/20/12	1134	

Attachment I

Key to Count Sheets
Count Sheets
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type	Structure Types
A = Amosite	F = Fiber
An = Anthophyllite	B = Bundle
C = Chrysotile	C = Cluster
Cr = Crocidolite	M = Matrix
T = Tremolite	

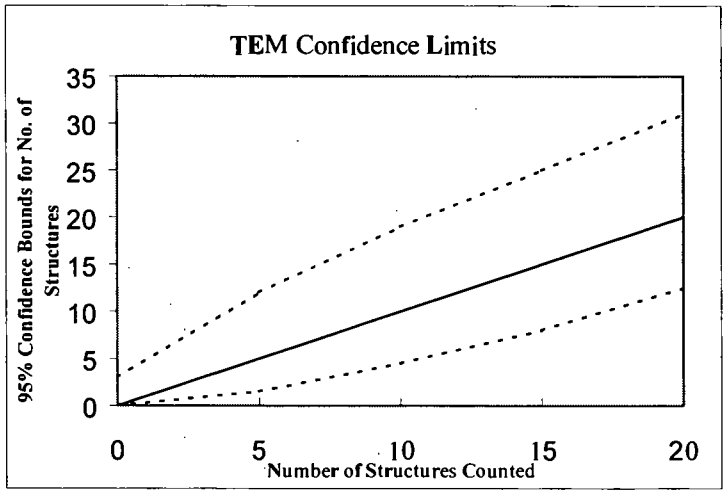
ND = no structures detected
M = other structure associated with a matrix
NAM = Non Asbestos Mineral
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr
Nathan DelHierro
Angela Heitger
Jonathan Bernard
Paul D. LoScalzo
Mark Steiner
Norberto Zimbleman
Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory Name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	909
Date received by lab	3-19-12
Lab Job Number:	231934
Lab Sample Number:	873119

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	AH
Analysis date	3-20-12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Data Ok JB 3/20/12

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	D	NAM		Sketch	Photo	EDS
A	G4-6	ND												
	F4-6	ND												
	E4-6	ND												
	G5-1	ND												
	F5-1	ND												
B	G5-1	ND												
	F5-1	ND												
	E5-1	ND												
	C5-1	ND												

Prep A: 60% intact 5-7% debris

Prep B ~ Prep A

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	911
Date received by lab	3-19-12
Lab Job Number:	231934
Lab Sample Number:	873120

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	AH
Analysis date	3-20-12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	G4-6	ND												
	F4-6	ND												
	E4-6	ND			Prep A: 70% intact				5-7% debris					
	C4-6	ND			Prep B: 60% intact				5-7% debris					
	B4-6	ND												
B	G5-4	ND												
	F5-4	ND												
	E5-4	ND												
	C5-4	ND												

LA = Libby-type amphibols OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	909
Date received by lab	3-19-12
Lab Job Number:	231934
Lab Sample Number:	873121

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	AH
Analysis date	3-20-12
Method (O=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules 0SO, AHERA, ASTM)	AHera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	F4-6	ND												
	E4-6	ND												
#1 3/2/12	C4-6	ND		Prep A: 80% intact				5-7% debs						
	F3-3	ND		Prep B: 90% intact				5-7% debs						
	E3-3	ND												
B	F4-4	ND												
	E4-4	ND												
	C4-4	ND												
	B4-4	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltaae (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scate: 1L =	0.28 um
Scale: 1D =	0.058 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	909
Date received by lab	3-19-12
Lab Job Number:	231934
Lab Sample Number:	873122

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	AH
Analysis date	3-20-12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Stmcture Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H5-1	ND												
	G5-1	ND												
	F5-1	ND					Prep A: 90% intact			5-7% debris				
	E5-1	ND					Prep B: 80% intact			5-7% debris				
	C5-1	ND												
B	K4-3	ND												
	H4-3	ND												
	G4-3	ND												
	F4-3	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm^2 (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm^2 (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber:	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
Bundle:	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
Cluster:	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
Matrix:	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50^{th} structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm^2 clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

$$\text{Area Analyzed, } mm^2 = \#\text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\#\text{ Asbestos Structures}}{\#\text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area } (mm^2)}{\text{Average GO area } (mm^2)} \times \frac{1L}{1000cc}$$

$$\text{Filter loading, s/mm}^2 = \frac{\#\text{ Asbestos structures}}{\text{Area Analyzed } (mm^2)}$$

GO = TEM grid opening

REI LAB Reservoirs Environmental, Inc.

March 20, 2012

Laboratory Code:	RES
Subcontract Number:	NA
Laboratory Report:	RES 231937-1
Project # / P.O. #	None Given
Project Description:	3rd West Sub - RMP

Eldon Romney
R & R Environmental
47 West 9000 South #2
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 231937-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr
President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: 030-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:	RES 231937-1
Client:	R & R Environmental
Client Project Number / P.O.:	None Given
Client Project Description:	3rd West Sub - RMP
Date Samples Received:	March 19, 2012
Analysis Type:	TEM, AHERA
Turnaround:	24 Hour
Date Samples Analyzed:	March 20, 2012

Client ID Number	Lab ID Number	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
		(mm^2)	(L)		(s/cc)	(s/cc)	(s/mm^2)
3W-031712 W	EM 873123	0.1000	671	ND	0.0057	BAS	BAS
3W-031712 N	EM 873124	0.1000	669	ND	0.0058	BAS	BAS
3W-031712 E	EM 873125	0.1000	671	ND	0.0057	BAS	BAS
3W-031712 S	EM 873126	0.1000	669	2	0.0058	0.0115	20.0

NA = Not Analyzed
ND = None Detected
BAS = Below Analytical Sensitivity
Average Grid Opening in mm^2 = 0.010

Filter Material = Mixed Cellulose Ester
Filter Diameter = 25 mm
Effective Filter Area = 385 sq mm

Digitally signed by Gina Vancamp
Date: 2012.03.20 11:43:18 -08'00'

DATA QA

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0016

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number:	RES 231937-1
Client:	R & R Environmental
Client Project Number / P.O.:	None Given
Client Project Description:	3rd West Sub - RMP
Date Samples Received:	March 19, 2012
Analysis Type:	TEM, AHERA
Turnaround:	24 Hour
Date Samples Analyzed:	March 20, 2012

Client ID Number	Lab ID Number	Asbestos Mineral	Asbestos Structure Types*				Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for Concentration
			Fibers	Bundles	Clusters	Matrices			
3W-031712 W	EM 873123	ND	0	0	0	0	0	0	0
3W-031712 N	EM 873124	ND	0	0	0	0	0	0	0
3W-031712 E	EM 873125	ND	0	0	0	0	0	0	0
3W-031712 S	EM 873126	Chrysotile	2	0	0	0	0	0	2

*See Analytical Procedure for definitions

**C = Excluded from total due to lack of confinnation

**L = Excluded from total for length less than 0.5 micron (AHERA only)

**A = Excluded from total due to incorrect aspect ratio

ND = None Detected

Due Date: 93-10-12
Due Time: 955

RES 231937

REI LAB Reservoirs Environmental, Inc.
5601 Logan St. Denver, CO 80216 • Ph: 303 964-1986 • Fax 303-477-4275 • Toll Free 866 RESI-ENV
Pager: 303-909-2095

Page 1 of ____

Company: R & R Environmental	Company:	Contact: Dave Ruskelley	Contact:
Address: 47 W 9000 S #2	Address:	Phone:	Phone:
Sandy Ut.		Fax:	Fax:
		Cell/pager: 801 641-1035	Cell/pager
Project Number and/or P.O. #:		Final Data Deliverable Email Address:	
Project Description/Location: 3rd West Sub - RAMP			

INVOICE TO: (IF DIFFERENT) — CONTACT INFORMATION:

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm
PLM / PCM / (TEM) ___ RUSH (Same Day) X PRIORITY (Next Day) ___ STANDARD
(Rush PCM = 2hr, TEM = 6hr.)

CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm
Metal(s) / Dust ___ RUSH ___ 24 hr. ___ 3-5 Day
RCRA 8 / Metals & Welding Fume Scan / TCLP ___ RUSH ___ 5 day ___ 10 day
Organics ___ 24 hr. ___ 3 day ___ 5 Day
Prior notification is required for RUSH turnarounds.

MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm
E.coli O157:H7, Coliforms, S.aureus ___ 24 hr. ___ 2 Day ___ 3-5 Day
Salmonella, Listeria, E.coli, APC, Y & M ___ 48 Hr. ___ 3-5 Day
Mold ___ RUSH ___ 24 Hr ___ 48 Hr ___ 3 Day ___ 5 Day

Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.

Special Instructions:

REQUESTED ANALYSIS: PLM - Short report, Long report, Point Count; TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-vac, ISO-Indirect Preps; PCM - 7400A, 7400B, OSHA; DUST - Total, Respirable; METALS - Analyte(s); RCRA 8, TCLP, Welding Fume, Metals Scan; ORGANICS - METH; MICROBIOLOGY: Salmonella: +/-; E.coli O157:H7: +/-; Listeria: +/-; Aerobic Plate Count: +/- or Quantification; E.coli: +/- or Quantification; Coliforms: +/- or Quantification; S.aureus: +/- or Quantification; Y & M: +/- or Quantification; Mold: +/-, Identification, Quantification; SAMPLER'S INITIALS OR OTHER NOTES

VALID MATRIX CODES: Air = A; Bulk = B; Dust = D; Paint = P; Soil = S; Wipe = W; Swab = SW; F = Food; Drinking Water = DW; Waste Water = WW; O = Other
ASTM E1792 approved wipe media only

LAB NOTES: 32012

#	Client sample ID number (Sample ID's must be unique)	TEM	Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yy	Time Collected hh/mm a/p	EM Number (Laboratory Use Only)
1	3W-031712W	X	671	A		3/17/12		873123
2	3W-031712 N	↓	669	↓		↓		24
3	3W-031712 E	↓	671	↓		↓		25
4	3W-031712 S	↓	669	↓		↓		26
5								
6								
7								
8								
9								
10								

Number of samples received: (4) (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: [signature] Fed Ex — Date/Time: 3/17/12
Laboratory Use Only — Received By: [signature] — Date/Time: 3-19-12 955 — Carrier: Fed Ex
Sample Condition: Temp. (F°) ____ On Ice Yes / No; Sealed Yes / No; Intact (Yes) / No

Results:	Contact	Phone Email Fax	Date	Time	Initials	Contact	Phone Email (Fax)	Date 32012	Time 1135	Initials [initials]
	Contact	Phone Email Fax	Date	Time	Initials	Contact	Phone Email Fax	Date	Time	Initials

Attachment I

Key to Count Sheets
Count Sheets
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type	Structure Types
A = Amosite	F = Fiber
An = Anthophyllite	B = Bundle
C = Chrysotile	C = Cluster
Cr = Crocidolite	M = Matrix
T = Tremolite	

ND = no structures detected
M = other structure associated with a matrix
NAM = Non Asbestos Mineral
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

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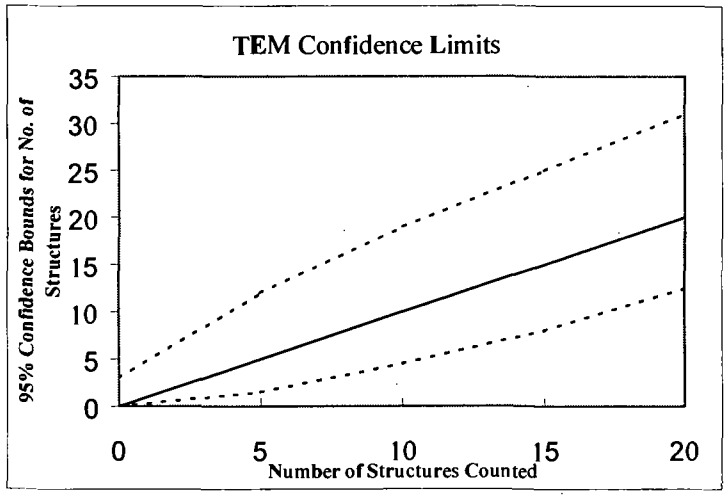

Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	6701 3/20/12
Date received by lab	3/19/12
Lab Job Number:	231937
Lab Sample Number:	873123

Analyzed by	JB
Analysis date	3/20/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	L3-3	ND												
	H3-3	ND			Prep A		80% loading		5% debris					
	K3-3	ND			Prep B		70% loading		5% debris					
	G3-3	ND												
	G4-3	ND					JB 3/20/12							
B	K3-6	ND												
	H3-6	ND												
	G3-6	ND												
	K4-3	ND												
	H4-3	ND												

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid openina area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tvoe	

Client :	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	6609
Date received by lab	3/19/12
Lab Job Number:	231937
Lab Sample Number:	873124

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JKB
Analysis date	3/20/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H4-4	ND												
	G4-4	ND				Pup	A	80% tremolite		5% debris				
	E4-1	ND				Pup	B	60% tremolite		5% debris				
	C4-1	ND												
	B4-1	ND						3/20/12						
B	G4-1	ND												
	F4-1	ND												
	E4-1	ND												
	G4-3	ND												
	F4-3	ND												

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Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratoiy name:	REI
Instmment	JEOL 100 CX (N) S
Voltaae (KV)	100 KV
Maanification	(20KX) 10KX
Grid openina area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filler area (mm2)	385
Secondary Filter Area (mm2)	
QA Tvoe	

Client :	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	671
Date received by lab	3/19/12
Lab Job Number:	231937
Lab Sample Number:	873125

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applisd to secondary filter (ml)	

Analyzed by	JKB
Analysis date	3/20/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting mles (ISO, AHERA, ASTM)	AH
Grid storaae location	Month Analyzed
Scope Allanment	Date Analyzed

Grid	Grid Opening	Stmcture Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Lenath	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	K4-4	ND												
	H4-4	ND			Rep	A	50% tremolite		5% debris					
	G4-4	ND			Rep	B	50% tremolite		5% debris					
	E4-4	ND												
	F4-4	ND					JKB 3/20/12							
B	G4-6	ND												
	F4-6	ND												
	E4-6	ND												
	F5-1	ND												
	E5-1	ND												

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Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instmment	JEOL 100 CX (N) S
Voltaae (KV)	100 KV
Magnification	(20KX) 10KX
Grid openina area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tvoe	

Client :	R+R
Sample Tvoe (A=Air, D=Dust):	A
Air volums (L) or dust area (cm2)	669
Date received by lab	3/19/12
Lab Job Number:	231137
Lab Sampla Number:	873126

F-Factor Calculafion (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Voluma (ml)	
Voluma Applied to secondary filter (ml)	

Analyzed by	JLB
Analysis date	3/20/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting mles (ISO, AHERA, ASTM)	AH
Grid storaae location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Stmcture Type	No. of Structures		Dimensions		identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Lenath	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	G3-6	F		1	5½	1	CD		✓		—			
	F3-6	ND												
	E3-6	F		2	3	1	CD		✓		\			
	C3-6	ND				Prep A 80% in last			5-10% debris					
	B4-4	ND				Prep B 50% in last			5-10% debris					
B	L5-1	ND												
	K5-1	ND												
	H5-1	ND												
	G5-1	ND												
	F3-6	ND												

JLB 3/20/12

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm^2 (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm^2 (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber:	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
Bundle:	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
Cluster:	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
Matrix:	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50^{th} structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm^2 clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

$$\text{Area Analyzed, } mm^2 = \#\text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\#\text{ Asbestos Structures}}{\#\text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area } (mm^2)}{\text{Average GO area } (mm^2)} \times \frac{1L}{1000cc}$$

$$\text{Filter loading, s/mm}^2 = \frac{\#\text{ Asbestos structures}}{\text{Area Analyzed } (mm^2)}$$

GO = TEM grid opening

File: Shared on server T/Offforms.sg/AHERA Procedures
Revised: 02/27/02